# A Hydroacoustic Survey for Pacific Hake on the Continental Shelf off British Columbia and Washington From 48 to 49 Degrees North Latitude: August 22 to September 8, 1983

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Canadian Data Report of

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# A HYDROACOUSTIC SURVEY FOR PACIFIC HAKE ON THE CONTINENTAL SHELF OFF BRITISH COLUMBIA AND WASHINGTON FROM 48 TO 49 DEGREES NORTH LATITUDE: AUGUST 22 TO SEPTEMBER 8, 1983

by

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## ABSTRACT

Barner, L. W., R. Kieser and T. J. Mulligan. 1984. A hydroacoustic survey for Pacific hake on the continential shelf off British Columbia and Washington from 48 to 49 degrees north latitude: August 22 to September 8, 1983. Can. Data Rep. Fish. Aquat. Sci. 458: 98 p.

A hydroacoustic survey for Pacific hake was conducted off the B.C. and Washington coast from August 22 to September 8, 1983. This report presents summary data of the hake biomass for this area plus surface density measurements for each nautical mile of sounding transect. Summary information of associated midwater trawl catches is also presented.

Key words: hydroacoustic survey, Pacific hake, echo integration, abundance, distribution

## RÉSUMÉ

Barner, L. W., R. Kieser and T. J. Mulligan. 1984. A hydroacoustic survey for Pacific hake on the continential shelf off British Columbia and Washington from 48 to 49 degrees north latitude: August 22 to September 8, 1983. Can. Data Rep. Fish. Aquat. Sci. 458: 98 p.

Un inventaire hydroacoustique du merlu du Pacifique a été effectué du 22 août au 8 septembre 1983 au large des côtes de la Colombie-Britannique et de l'État de Washington. Le rapport résume les données sur la biomasse du merlu dans cette zone et les densités de surface déterminées pour chaque mille marin de transect de sondage. On donne aussi un aperçu de l'information relative aux prises par chalut pélagique.

Mots clés: inventaire hydroacoustique, merlu du Pacifique, écho-intégration, abondance, répartition

## INTRODUCTION

A hydroacoustic survey was carried out off the lower west coast of Vancouver Island, B.C. Canada to determine the distribution and abundance of Pacific hake, Merluccius productus. A chartered trawler fished the same area at the same time to determine the species composition of the midwater stocks and to obtain biological information.

This report gives a brief description of the hydroacoustic data acquisition system, and of the data analysis procedure. It contains a summery of the biomass estimates for the total area, and for each transect. The biomass surface density was measured at six minute intervals (approximately 1 nmi), these values are given in an appendix. The midwater fishing gear is described briefly and the catches are reported.

This work was planned and executed as part of a joint Canadian/U.S. survey of the Pacific hake stock. The hydroacoustic unit from the National Marine and Fisheries Service (NMFS), Seattle, Wash. executed an independent survey of the same area at the same time. The objective of the joint survey was to determine if the acoustic techniques used by both the Canadian and U.S. groups would yield similar population estimates for hake.

## MATERIALS AND METHODS

### HYDROACOUSTIC SURVEY

This survey was conducted from the C.G.S. G.B. REED, during August 22 to September 8, 1983. It covered the area between the 48th and 49th parallels off Vancouver Island that extends from the 50 to the 300 m depth contour, an east-west distance of approximately 50 nmi (1 nmi = 1.852 km). A predetermined grid of regular, parallel transects was followed. The distance between transects, which were arranged as much as possible to be perpendicular to the depth contours, was 2.5 nmi. The transects are shown in Fig. 1. The hake distribution provided optimal survey conditions during daylight hours (about 0600-2100 hrs PDT) and travelling between transects was done after dark.

A calibrated echo integration system was installed on the G.B. REED. It consisted of a BioSonics 38 kHz echo sounder, a Simrad ceramic transducer, a towed vehicle, a Simrad chart recorder, a BioSonics digital echo integrator, and a 1/2 in. digital magnetic tape recorder. A PDP 11/23 computer was used to analyse the echo integration data at sea. The echo integration equation and a summary of the systems calibration constants and instrument settings are given in Appendix I. The operation of the echo integrator and the data analysis procedure have been described elsewhere (Kieser 1983), only a short summary follows.

The echo interator was programmed to analyse the return echoes for a series of depth slices (depth strata) between the surface and the bottom. An echo integration interval was completed every 100 pings (2 minutes) and the measured relative volume densities for each strata were stored on 1/2 in. magnetic tape. The present summary reduces the raw data by combining three consecutive intervals into a "printout" (PO) and by combining all strata into a single stratum. The first 20 m depth showed little fish and was excluded from the analysis to eliminate a weak but persistent surface echo that appeared at 12 m range. The bottom tracking buffer was set to limit integration of the echoes to 7 m above the bottom, this provided reliable bottom tracking under most conditions. The echo integrator output was scaled by a systems calibration constant and an assumed fish target strength (TS) of -32.0 dB/kg to yield the fish volume density (biomass per cubic meter, $kg/m^3$) for the insonified volume. This estimate was converted to surface density (biomass per square meter, $kg/m^2$) by summing over all depth strata of interest. This number in turn was multiplied by the appropriate surface area to obtain a biomass estimate (kg) for each printout. Total biomass estimates were obtained by summing these estimates.

Species specific biomass estimates were made by adding species information from the echograms and the catches. Typical examples of hake echo signs are shown in Fig. 2. These signs were interpreted by an experienced person who used the following characteristics for their identification: depth of water column, depth of school, bottom configuration, zig-zag pattern of the school, and many small aggregations coalesced into a larger school. Repeated trawl catches from these aggregations confirmed the echogram identification.

The biomass and surface density estimates were generated by the computer program BIOMASS. It analyses the echo integrator output data, and is driven by a control file that clearly records all parameters and assumptions that are used in the analysis. The biomass tables that are given in Appendix II were essentially written by this program. The control language that is normally echoed has been removed, selected comments have been added.

## FISHING SURVEY

The fishing survey was carried out by the trawler M/V MARWOOD. This vessel is 39 m in length and is powered by a 750 hp engine. The M/V MARWOOD used Canadian Diamond #5 and #8 midwater trawls, 5 $m^2$ Suberkrub otter boards and 40 fm sweeplines. The Canadian Diamond #5 net was used for tows 1 - 36 and had an 11 m mouth opening while the Canadian Diamond #8 was used for tows 37 - 40 and had a 15 m opening. The tows were of 4 to 30 minutes duration.

In most cases the fishing positions were selected to sample the major fish concentrations that had been identified by the acoustic vessel. An effort was made to minimise the time between the acoustic survey and the subsequent fishing, however, elapse times of 24 hours or more were not uncommon. The catches were analysed for species composition in the major areas. Biological information and samples were also taken. A detailed report of the fishing operations and catches will be published (Shaw 1984).

# RESULTS

## BIOMASS ESTIMATES

A total biomass estimate was made that includes the entire survey area and all species. A hake estimate was derived from this information, the echograms and the catch data. These estimates are shown in Table 1 which also gives the depth centroid, the mean density weighted depth below the transducer at which the fish were detected, and the total area that was assigned to the fish concentration. The area listed under "all species" is the total survey area. A second, conservative hake estimate is also given to obtain an indication of the reliability of the species identification. The latter estimate only includes those hake concentrations that were identified as purely hake.

Table 1. Biomass estimates for the total survey area.

| | ALL SPECIES | HAKE | HAKE (conservative) |
|---|---|---|---|
| TOTAL BIOMASS (kg) | 2.80E+8 | 1.45E+8 | 1.26E+8 |
| DEPTH CENTROID (m) | 91 | 116 | 113 |
| AREA ($km^2$) | 8709 | 4133 | 2606 |

A breakdown of these estimates by transect is given in Table 2. It summarizes the surface densities and biomass estimates for all species and hake.

Table 2. Area, surface density and biomass estimates for the transects shown in Fig. 1.

| | | ALL SPECIES | | HAKE | |
|---|---|---|---|---|---|
| TRANSECT | AREA $km^2$ | SURF/D $kg/m^2$ | BIOMASS kg | SURF/D $kg/m^2$ | BIOMASS kg |
| E1 | 250.4 | 1.42E-02 | 3.55E+06 | 1.77E-02 | 2.91E+06 |
| E2 | 267.5 | 3.81E-02 | 1.02E+07 | 5.12E-02 | 9.80E+06 |
| E3 | 200.6 | 2.94E-02 | 5.90E+06 | 4.60E-02 | 4.91E+06 |
| E4 | 301.8 | 2.88E-02 | 8.68E+06 | 4.15E-02 | 6.86E+06 |
| E5 | 319.0 | 1.03E-02 | 3.31E+07 | 7.25E-02 | 1.13E+07 |
| E6 | 336.1 | 7.01E-02 | 2.36E+07 | 7.61E-02 | 1.23E+07 |
| E7 | 353.3 | 2.16E-02 | 7.61E+06 | 5.06E-02 | 6.70E+06 |
| E8 | 125.2 | 2.67E-02 | 3.35E+06 | 1.50E-02 | 1.72E+06 |
| E9 | 525.3 | 1.02E-02 | 5.35E+06 | 1.12E-02 | 5.04E+06 |
| E10 | 406.4 | 2.29E-02 | 9.32E+06 | 1.66E-02 | 2.40E+06 |
| E11 | 453.6 | 3.46E-02 | 1.57E+07 | 4.78E-02 | 1.44E+07 |
| E12 | 212.7 | 5.07E-02 | 1.08E+07 | 6.79E-02 | 1.06E+07 |
| E13 | 178.4 | 5.73E-02 | 1.02E+07 | 5.84E-02 | 6.64E+06 |
| E14 | 172.4 | 1.51E-02 | 2.60E+06 | 6.01E-02 | 9.26E+05 |
| E15 | 113.2 | 8.80E-03 | 9.96E+05 | - | - |
| E16 | 130.3 | 2.78E-03 | 3.63E+05 | - | - |
| E17 | 87.5 | 2.86E-03 | 2.50E+05 | - | - |
| E20 | 84.9 | 1.00E-02 | 8.49E+05 | 8.55E-02 | 6.09E+05 |
| E21 | 126.0 | 1.64E-02 | 2.06E+06 | 3.72E-02 | 1.97E+06 |
| E22 | 171.5 | 4.65E-02 | 7.97E+06 | 2.71E-01 | 4.06E+06 |
| E23 | 245.2 | 3.75E-02 | 9.20E+06 | 4.25E-02 | 9.21E+07 |
| E24 | 226.4 | 3.11E-02 | 7.06E+06 | 3.14E-02 | 2.18E+06 |
| E25 | 247.0 | 2.95E-02 | 7.28E+06 | 5.36E-02 | 9.87E+07 |
| E26 | 264.1 | 4.66E-02 | 1.23E+07 | 4.78E-02 | 8.92E+06 |
| E27 | 212.7 | 4.29E-02 | 9.13E+06 | 1.52E-01 | 8.19E+06 |
| E28 | 169.8 | 2.08E-01 | 3.54E+07 | - | - |
| E29 | 126.9 | 3.81E-02 | 4.84E+06 | - | - |
| E30 | 124.2 | 2.94E-02 | 3.65E+06 | - | - |
| E32 | 68.6 | 4.68E-03 | 3.21E+05 | 3.49E-03 | 1.79E+05 |
| E33 | 80.6 | 6.23E-03 | 5.02E+05 | 5.60E-03 | 4.52E+05 |
| E34 | 90.9 | 4.10E-03 | 3.72E+05 | 3.69E-03 | 3.35E+05 |
| E35 | 102.9 | 6.80E-03 | 6.99E+05 | 5.60E-03 | 4.53E+05 |
| E36 | 113.2 | 3.97E-03 | 4.50E+05 | 3.97E-03 | 4.50E+05 |
| E37 | 125.2 | 2.02E-02 | 2.53E+06 | 3.34E-03 | 2.81E+05 |
| E38 | 138.1 | 7.67E-03 | 1.06E+06 | 8.95E-03 | 9.02E+05 |
| E39 | 149.2 | 9.21E-03 | 1.37E+06 | 1.02E-02 | 1.24E+06 |
| E40 | 160.3 | 2.33E-02 | 3.74E+06 | 2.23E-02 | 2.84E+06 |
| E41 | 329.3 | 1.83E-02 | 6.03E+06 | 2.45E-02 | 2.38E+06 |
| E42 | 315.6 | 1.73E-02 | 5.45E+06 | 2.01E-02 | 3.72E+06 |
| E43 | 308.7 | 1.30E-02 | 4.02E+06 | 5.76E-02 | 2.06E+06 |
| E44 | 295.0 | 7.98E-03 | 2.36E+06 | 1.49E-02 | 1.08E+06 |

A further breakdown of the estimates into 6-minute intervals is given in Table 3. It is an example of the annotated BIOMASS printout that is given in Appendix II.

Table 3. Example of the annotated BIOMASS printout.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 300 | 4.63 | 7.43 | 20 | 36 | 3.85E-03 | 2.86E+04 | HE | |
| 3 | 300 | 4.63 | 7.43 | 25 | 37 | 8.00E-03 | 5.94E+04 | " | |
| 4 | 300 | 4.63 | 7.43 | 33 | 45 | 9.41E-03 | 6.99E+04 | .8HE/.2RO | |
| 5 | 300 | 4.63 | 7.43 | 45 | 49 | 2.17E-02 | 1.62E+05 | " | |
| 6 | 300 | 4.63 | 7.43 | 55 | 46 | 1.94E-02 | 1.44E+05 | .8HA/.2HE | 15 |
| 7 | 300 | 4.63 | 7.43 | 62 | 59 | 1.43E-02 | 1.06E+05 | " | " |
| 8 | 300 | 4.63 | 7.43 | 67 | 68 | 1.11E-02 | 8.27E+04 | " | |
| 9 | 300 | 4.63 | 7.43 | 73 | 75 | 8.88E-03 | 6.60E+04 | " | |
| 10 | 300 | 4.63 | 7.43 | 79 | 83 | 3.93E-02 | 2.92E+05 | " | |
| 11 | 300 | 4.63 | 7.43 | 84 | 94 | 4.52E-02 | 3.36E+05 | HA | |
| 12 | 300 | 4.63 | 7.43 | 90 | 96 | 1.50E-03 | 1.12E+04 | " | |
| 13 | 300 | 4.63 | 7.43 | 95 | 97 | 9.41E-04 | 6.99E+03 | " | |

This table gives the "all species" surface densities and biomass estimates that were obtained along the transects at six minute intervals. It also gives some auxillary information, including estimated species composition and tow no. The table headings have the following meaning:

PO = "Printout" sequence number. It locates the PO on the transect.
PI = Number of pings that were integrated for this PO.
WID = Effective width associated with this PO, km.
AREA = Area associated with this PO, $km^2$.
COL = Mean analysed depth, below the transducer, m.
Not to be confused with mean depth of water column.
D/C = Depth centroid m, mean depth weighted by volume density.
TOW # = Identifies the M/V MARWOOD tow.

The estimated species composition for each PO is given in the next to last column, it uses the following species codes:

| | |
|---|---|
| HA = Hake | EU = Eulachon |
| HE = Herring | DO = Dogfish |
| RO = Rockfish | PL = Plankton. |

A single species code in this column implies that the echogram and/or catches indicated a pure aggregation, e.g. the first row, PO 2, in Table 3 was judged to consist of only HE. When several species codes are present then each is preceded by a number which gives the fraction for that species, e.g. PO 4: .8HA/.2HE was judged to consist of 80% HA and 20% HE. The depth range is noted after the species code, eg. HA20-100,RO100-BOT reads HA from 20 to 100 m and RO from 100 m to the bottom. The surface densities shown in Table 3 and Appendix table II/2 have been plotted along the transect to give a visual representation of the fish distribution (Fig. 3).

## CATCH COMPOSITION DATA

The total catch for the cruise had a composition of: 83.6% hake, 11.5% dogfish, 2.9% rockfish, 1.3% pollock, and 0.5% herring. The catch by species is given in Appendix table III/1 for the 40 sets. Time, location and depths fished for each tow were recorded in "bridge log sheets", these are given in Appendix table III/2. The positions and directions of tows are plotted in Fig. 1.

## ACKNOWLEDGMENTS

The co-operation and assistance of Captain J. A. Ranger and the crew of the C.G.S. G.B. REED are most gratefully acknowledged. Special thanks are extended to Captain J. Trim and crew of the M/V MARWOOD. Without the

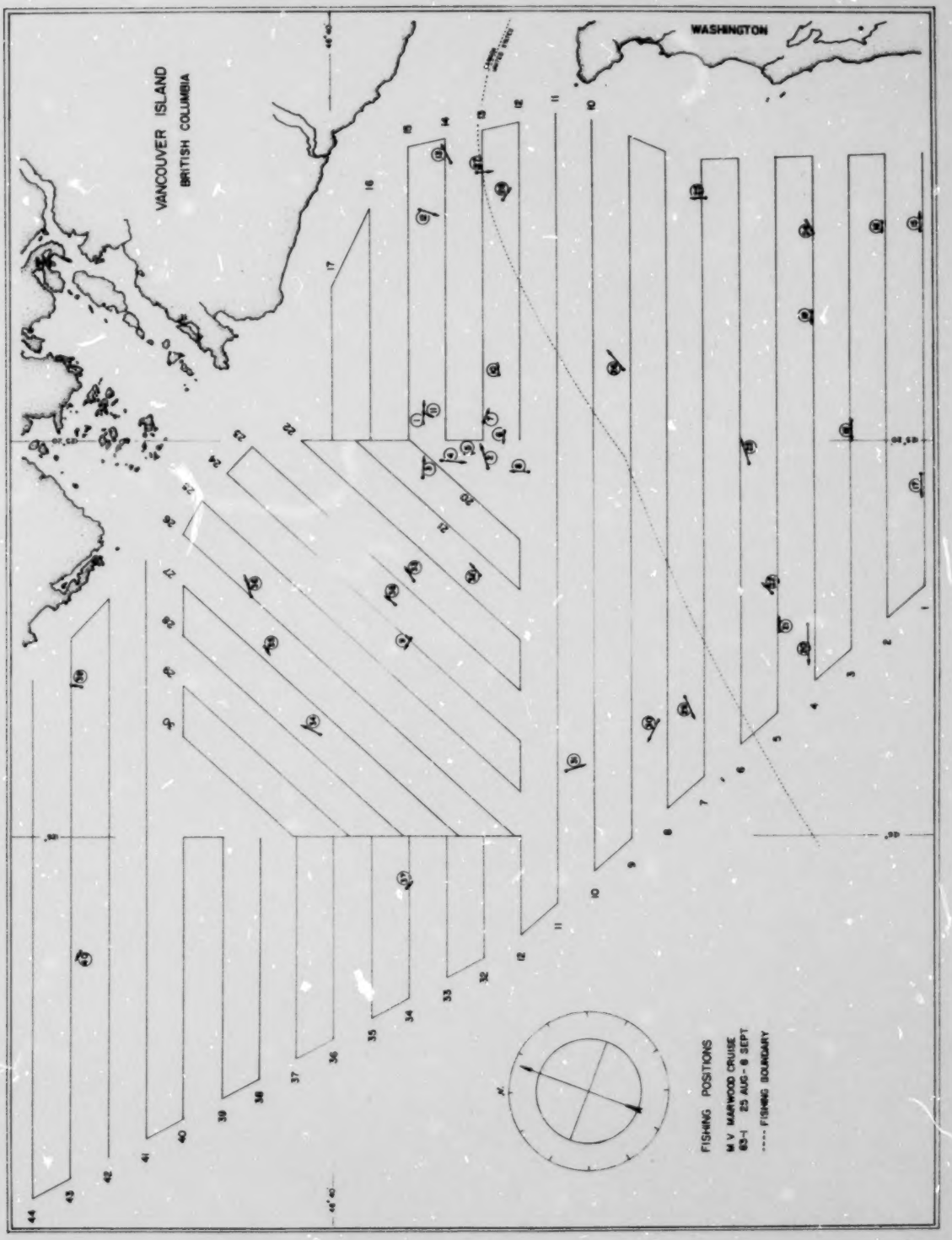
support of the captains and vessel crews, little would have been accomplished. The scientific party on the MARWOOD was led by W. Shaw and assisted by J. R. Scarsbrook, M. S. Smith and G. A. McFarlane. R. M. Hungar assisted with data collection on the G.B. REED and prepared the figures for this report.

## REFERENCES

Kieser, R. 1983. Hydroacoustic biomass estimates of bathypelagic groundfish in Georgia Strait, January, February, and April, 1981. Can. MS Rep. Fish. Aquat. Sci., No. 1715.

Shaw, W., G. A. McFarlane, J. R. Scarsbrook, and M. S. Smith. 1984. Distribution and biological summary of Pacific hake and walleye pollock off west coast Vancouver Island, and State of Washington, USA. R/V G.B. REED (August 15-21, 1983) and M/V MARWOOD (August 25-September 9, 1983). Can. MS Rep. Fish. Aquat. Sci. (in press).

Fig. 1. The survey area, transects and midwater tow locations are shown. Transects are numbered at the side, while tows are identified by a circled number with an arrow indicating tow direction.


WASHINGTON
VANCOUVER ISLAND
BRITISH COLUMBIA
FISHING POSITIONS
M V MARWOOD CRUISE
83-1 25 AUG - 6 SEPT
---- FISHING BOUNDARY

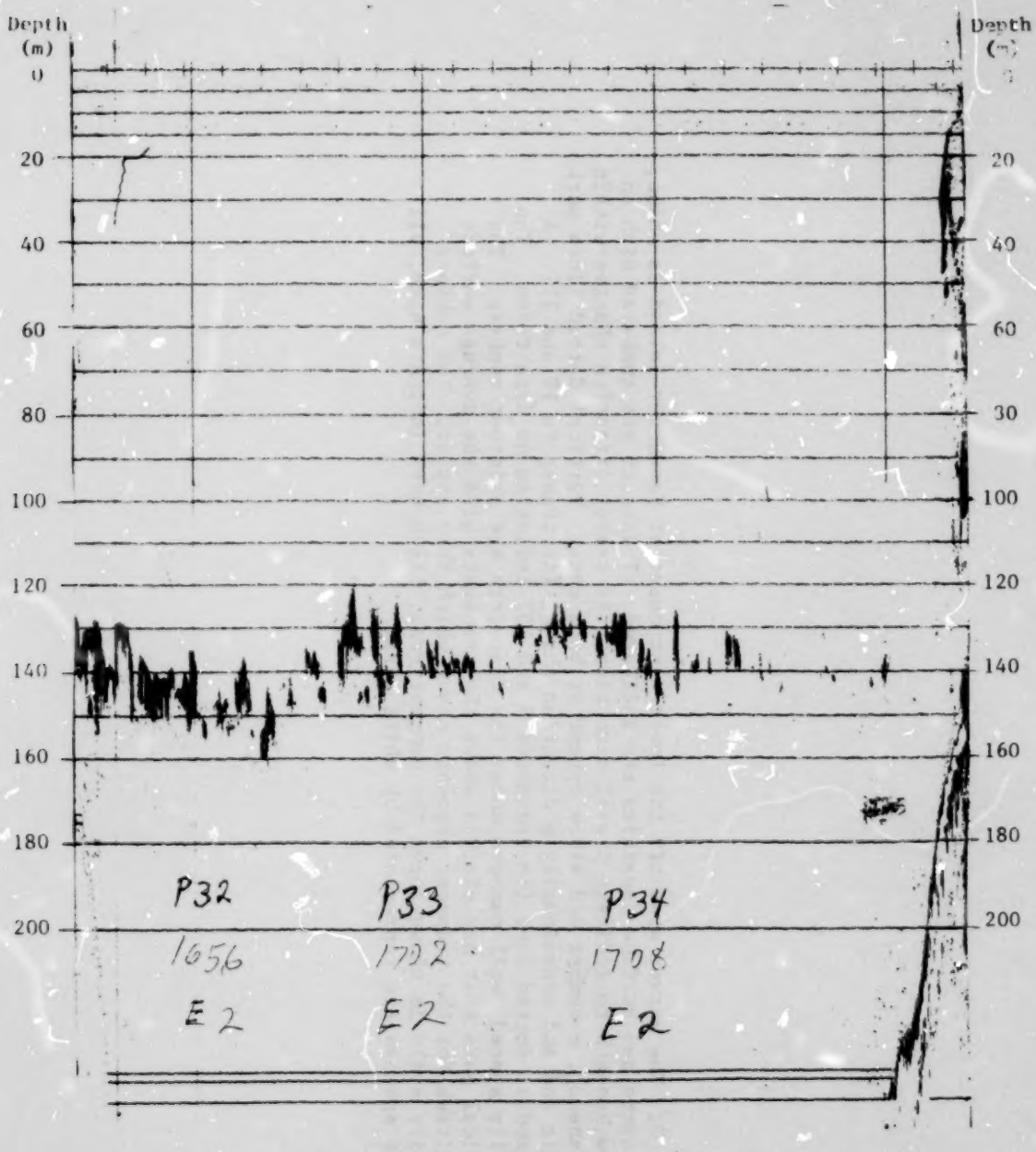
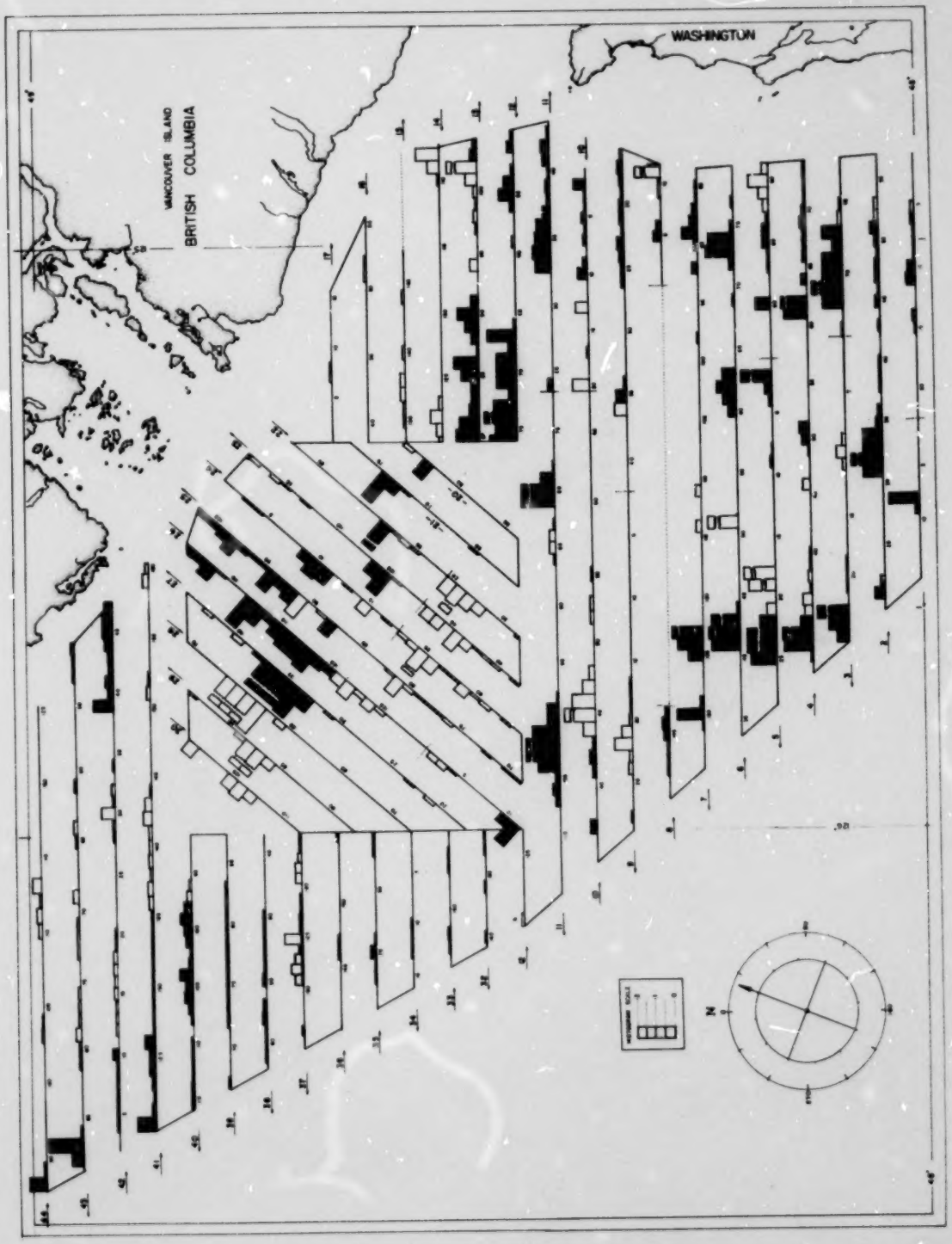



Fig. 2. Typical echograms showing lake schools.

Fig. 3. The survey area off the lower west coast of Vancouver Island is shown, transects and surface densities are indicated. Transects are numbered with an arrow beneath to indicate travel direction. If travel direction changes within a transect, a number and arrow appear at both ends. Vertical dotted lines mark a file end and occasionally a direction change (ie transects 10 and 11). A horizontal dotted line (ie transects 8 and 15) indicates no data taken. The equally spaced small numbers under the transects are printout numbers. The vertical bars that are plotted above the transects give the average surface densities for the transect segments above which they appear. The surface density scale is shown above the compass rose, black bars indicate hake, all other species are represented by white bars.


WASHINGTON
VANCOUVER ISLAND
BRITISH COLUMBIA
N

## APPENDIX I

The echo integration process and system calibration is described by the following equation:

$$I = TL + R - SA + RG - RR20 + PSI + CT + RO + TS$$

Where:

| | | |
|---|---|---|
| I | = Average intensity at echo integrator output | |
| TL | = Transmit level, 1000 W power, armored cable, no LC matching, calibration 18 July 83 (APL University of Washington, Seattle, WA) Trans. ser. S4318= 223.0 | dB re 1µPa @ 1m |
| R | = Receive sensitivity at integrator output: Trans. ser. S4318= -100.80 | dB re 1V/µPa |
| SA | = Shell loss (two way) = 1.1 | dB |
| RG | = Receiver gain | dB |
| RR20 | = Reference range factor: 20 log 100 + 2 × .0099 × 100 = 41.98 | dB |
| PSI | = Beam factor (Clay, Medwin p233) = -17.55 | dB |
| CT | = Depth slice: 10 log (c × τ / 2) 10 log (1500 × .0006 / 2) = -3.47 | dB |
| RO | = Fish density: 10 log ρ | dB re 1kg/m$^3$ |
| TS | = Target strength = -32.0 | dB re 1kg |

$$I = 223.0 - 100.80 - 1.1 + RG - 41.98 - 17.55 - 3.47 + RO + TS$$
$$= 58.10 + RG + RO + TS$$

The parameters of the acoustic system were:

| | |
|---|---|
| TVG | 20 log r -12 dB |
| Band width | 5 kHz |
| Attenuation | 9.9 dB/km |
| Cal | off, pulse mode |
| Separation | 3 m |
| Pulse output pot. | 0 |
| Bot. threshold | 300, not used |
| Range | 3.0 - 500.0 m |
| Blank at range | on |
| Rep. rate | .6 / 1.2 s |
| Ext. trig. | |
| Pulse width | .6 ms |
| Pulse power | 1000 W |

| Depth strata # | Min | Max |
|---|---|---|
| 1 | 5 | 10 |
| 2 | 10 | 15 |
| 3 | 15 | 20 |
| 4 | 20 | 30 |
| 5 | 30 | 40 |
| 6 | 40 | 50 |
| 7 | 50 | 60 |
| 8 | 60 | 70 |
| 9 | 70 | 80 |
| 10 | 80 | 90 |
| 11 | 90 | 100 |
| 12 | 100 | 110 |
| 13 | 110 | 120 |
| 14 | 120 | 130 |
| 15 | 130 | 140 |
| 16 | 140 | 150 |
| 17 | 150 | 160 |
| 18 | 160 | 180 |
| 19 | 180 | 200 |
| 20 | 200 | 250 |
| 21 | 250 | 300 |
| 22 | 300 | 400 |
| 23 | 400 | 500 |
| 24 | 500 | 999 |

## APPENDIX II

APPENDIX TABLE II/1 TRANSECT E1.

DEPTH INTERVAL 20-300M, SHIP'S COURSE 270 DEG TRUE
0636 - 0849 HRS. 28 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 300 | 4.63 | 7.43 | 20 | 36 | 3.85E-03 | 2.86E+04 | HE | |
| 3 | 300 | 4.63 | 7.43 | 25 | 37 | 8.00E-03 | 5.94E+04 | " | |
| 4 | 300 | 4.63 | 7.43 | 33 | 45 | 9.41E-03 | 6.99E+04 | .8HE/.2RO | |
| 5 | 300 | 4.63 | 7.43 | 45 | 49 | 2.17E-02 | 1.62E+05 | " | |
| 6 | 300 | 4.63 | 7.43 | 55 | 46 | 1.94E-02 | 1.44E+05 | .8HA/.2HE | 15 |
| 7 | 300 | 4.63 | 7.43 | 62 | 59 | 1.43E-02 | 1.06E+05 | " | " |
| 8 | 300 | 4.63 | 7.43 | 67 | 68 | 1.11E-02 | 8.27E+04 | " | |
| 9 | 300 | 4.63 | 7.43 | 73 | 75 | 8.88E-03 | 6.60E+04 | " | |
| 10 | 300 | 4.63 | 7.43 | 79 | 83 | 3.93E-02 | 2.92E+05 | " | |
| 11 | 300 | 4.63 | 7.43 | 84 | 94 | 4.52E-02 | 3.36E+05 | HA | |
| 12 | 300 | 4.63 | 7.43 | 90 | 96 | 1.50E-03 | 1.12E+04 | " | |
| 13 | 300 | 4.63 | 7.43 | 95 | 97 | 9.41E-04 | 6.99E+03 | " | |
| 14 | 300 | 4.63 | 7.43 | 101 | 107 | 1.51E-02 | 1.12E+05 | " | |
| 15 | 300 | 4.63 | 7.43 | 107 | 100 | 1.20E-02 | 8.88E+04 | " | |
| 16 | 300 | 4.63 | 7.43 | 112 | 106 | 9.69E-04 | 7.20E+03 | " | |
| 17 | 300 | 4.63 | 7.43 | 117 | 114 | 3.38E-04 | 2.51E+03 | " | |
| 18 | 300 | 4.63 | 7.43 | 120 | 117 | 3.66E-03 | 2.72E+04 | " | |
| 19 | 300 | 4.63 | 7.43 | 124 | 120 | 3.18E-03 | 2.36E+04 | " | |
| 20 | 300 | 4.63 | 7.43 | 123 | 117 | 1.22E-03 | 9.09E+03 | " | |
| 21 | 300 | 4.63 | 7.43 | 126 | 136 | 2.79E-03 | 2.08E+04 | " | |
| 22 | 300 | 4.63 | 7.43 | 126 | 137 | 2.90E-03 | 2.15E+04 | " | |
| CONTINUE TRANSECT E1 NEW FILE, SHIP'S COURSE 270 DEG TRUE<br>1348 - 1516 HRS. 28 AUGUST 1983. | | | | | | | | | |
| 1 | 300 | 4.63 | 6.42 | 131 | 141 | 4.90E-03 | 3.15E+04 | RO | |
| 2 | 300 | 4.63 | 6.42 | 147 | 131 | 8.38E-03 | 5.38E+04 | " | |
| 3 | 300 | 4.63 | 6.42 | 187 | 140 | 1.15E-02 | 7.38E+04 | " | |
| 4 | 300 | 4.63 | 6.42 | 265 | 177 | 3.49E-03 | 2.24E+04 | HA | |
| 5 | 300 | 4.63 | 6.42 | 265 | 209 | 5.69E-03 | 3.66E+04 | " | |
| 6 | 300 | 4.63 | 6.42 | 266 | 210 | 5.11E-03 | 3.28E+04 | " | 17 |
| 7 | 300 | 4.63 | 6.42 | 266 | 211 | 8.49E-03 | 5.45E+04 | " | " |
| 8 | 300 | 4.63 | 6.42 | 245 | 179 | 2.25E-01 | 1.45E+06 | " | " |
| 9 | 300 | 4.63 | 6.42 | 132 | 135 | 1.54E-02 | 9.89E+04 | " | |
| 10 | 300 | 4.63 | 6.42 | 121 | 130 | 1.07E-03 | 6.85E+03 | RO | |
| 11 | 300 | 4.63 | 6.42 | 124 | 53 | 1.28E-04 | 8.21E+02 | " | |
| 12 | 300 | 4.63 | 6.42 | 124 | 49 | 2.55E-04 | 1.64E+03 | " | |
| 13 | 300 | 4.63 | 6.42 | 126 | 64 | 4.67E-04 | 3.00E+03 | " | |
| 14 | 300 | 4.63 | 6.42 | 142 | 28 | 4.20E-04 | 2.70E+03 | " | |
| 15 | 205 | 4.63 | 4.39 | 166 | 60 | 4.07E-04 | 1.79E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E1 = 3.55E+06

APPENDIX TABLE II/1 (CONT'D) TRANSECT E2.

DEPTH INTERVAL 90-300M, SHIP'S COURSE 90 DEG TRUE
1938 - 1925 HRS. 28 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 20 | 300 | 4.63 | 7.09 | 197 | 215 | 2.34E-02 | 1.66E+05 | HA | |
| 21 | 300 | 4.63 | 7.09 | 196 | 212 | 5.48E-02 | 3.89E+05 | " | |
| DEPTH INTERVAL 90 - 160 m | | | | | | | | | |
| 22 | 300 | 4.63 | 7.09 | 90 | 134 | 1.97E-02 | 1.39E+05 | HA | |
| DEPTH INTERVAL 20 = 300M | | | | | | | | | |
| 23 | 300 | 4.63 | 7.09 | 157 | 104 | 3.08E-03 | 2.18E+04 | HA | |
| 24 | 300 | 4.63 | 7.09 | 139 | 46 | 6.40E-04 | 4.54E+03 | " | |
| 25 | 300 | 4.63 | 7.09 | 126 | 37 | 2.01E-04 | 1.43E+03 | " | |
| 26 | 300 | 4.63 | 7.09 | 118 | 30 | 2.04E-04 | 1.44E+03 | RO | |
| 27 | 300 | 4.63 | 7.09 | 108 | 112 | 7.83E-04 | 5.55E+03 | " | |
| 28 | 300 | 4.63 | 7.09 | 103 | 36 | 9.02E-05 | 6.40E+02 | " | |
| 29 | 300 | 4.63 | 7.09 | 102 | 30 | 2.31E-04 | 1.63E+03 | " | |
| 30 | 300 | 4.63 | 7.09 | 104 | 81 | 1.58E-04 | 1.12E+03 | " | |
| 31 | 300 | 4.63 | 7.09 | 127 | 139 | 1.22E-01 | 8.62E+05 | HA | |
| FOR PO#32 A VOL/D VALUE OF .08 WAS ENTERED FISH VERY DENSE, INTEGRATOR MISSED 100 OF 300 PINGS. VALUE TAKEN FROM 200 PINGS | | | | | | | | | |
| 32 | 300 | 4.63 | 7.09 | 192 | 105 | 5.99E-01 | 4.25E+06 | " | |
| 33 | 300 | 4.63 | 7.09 | 263 | 141 | 1.37E-01 | 9.68E+05 | " | |
| 34 | 300 | 4.63 | 7.09 | 263 | 136 | 9.36E-02 | 6.63E+05 | " | |
| 35 | 300 | 4.63 | 7.09 | 263 | 144 | 3.35E-02 | 2.37E+05 | " | |
| 36 | 300 | 4.63 | 7.09 | 147 | 135 | 1.73E-02 | 1.23E+05 | " | |
| 37 | 300 | 4.63 | 7.09 | 119 | 114 | 7.42E-03 | 5.26E+04 | " | |
| 38 | 300 | 4.63 | 7.09 | 115 | 124 | 1.33E-02 | 9.42E+04 | " | |
| 39 | 300 | 4.63 | 7.09 | 114 | 119 | 1.04E-02 | 7.35E+04 | " | |
| 40 | 300 | 4.63 | 7.09 | 114 | 114 | 1.31E-02 | 9.28E+04 | " | |
| 41 | 300 | 4.63 | 7.09 | 115 | 116 | 2.83E-03 | 2.01E+04 | " | |
| 42 | 300 | 4.63 | 7.09 | 112 | 103 | 9.19E-04 | 6.52E+03 | " | |
| 43 | 300 | 4.63 | 7.09 | 107 | 114 | 1.17E-02 | 8.30E+04 | " | |
| 44 | 300 | 4.63 | 7.09 | 102 | 112 | 3.35E-03 | 2.38E+04 | " | |
| 45 | 300 | 4.63 | 7.09 | 98 | 108 | 1.98E-02 | 1.41E+05 | " | |
| 46 | 300 | 4.63 | 7.09 | 96 | 99 | 9.00E-02 | 6.38E+05 | " | |
| 47 | 300 | 4.63 | 7.09 | 91 | 106 | 2.20E-02 | 1.56E+05 | " | |
| 48 | 300 | 4.63 | 7.09 | 87 | 88 | 1.85E-02 | 1.31E+05 | " | |
| 49 | 300 | 4.63 | 7.09 | 82 | 86 | 1.44E-02 | 1.02E+05 | " | 16 |
| 50 | 300 | 4.63 | 7.09 | 77 | 74 | 2.18E-02 | 1.55E+05 | " | |
| 51 | 300 | 4.63 | 7.09 | 70 | 75 | 3.59E-02 | 2.54E+05 | .8HA/.2HE | |
| 52 | 300 | 4.63 | 7.09 | 63 | 76 | 2.45E-02 | 1.74E+05 | HE | |
| 53 | 300 | 4.63 | 7.09 | 55 | 68 | 1.70E-02 | 1.21E+05 | " | |

APPENDIX TABLE II/I TRANSECT E2 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 54 | 300 | 4.63 | 7.09 | 47 | 46 | 3.80E-03 | 2.69E+04 | HE | |
| 55 | 300 | 4.63 | 7.09 | 35 | 40 | 1.84E-03 | 1.30E+04 | " | |
| 56 | 300 | 4.63 | 7.09 | 25 | 35 | 1.25E-03 | 8.89E+03 | " | |
| 57 | 217 | 4.63 | 5.13 | 19 | 27 | 1.10E-04 | 5.66E+02 | " | |

TOTAL BIOMASS FOR TRANSECT E2 = 1.02E+07

APPENDIX TABLE II/1 (CONT'D) TRANSECT E3.

DEPTH INTERVAL 20-300M, SHIP'S COURSE 270 DEG TRUE
1944 - 2101 HRS. 28 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 62 | 300 | 4.63 | 1.65 | 16 | 27 | 1.03E-04 | 1.71E+02 | HE | |
| 63 | 300 | 4.63 | 1.65 | 24 | 34 | 3.66E-03 | 6.04E+03 | " | |
| 64 | 300 | 4.63 | 1.65 | 38 | 52 | 3.62E-03 | 5.98E+03 | " | |
| 65 | 300 | 4.63 | 1.65 | 52 | 69 | 1.07E-02 | 1.77E+04 | " | |
| 66 | 300 | 4.63 | 1.65 | 64 | 76 | 2.09E-02 | 3.45E+04 | " | |
| 67 | 300 | 4.63 | 1.65 | 78 | 77 | 1.21E-01 | 1.99E+05 | HA | |
| 68 | 300 | 4.63 | 1.65 | 113 | 100 | 4.57E-02 | 7.54E+04 | " | |
| 69 | 300 | 4.63 | 1.65 | 169 | 103 | 1.24E-01 | 2.05E+05 | " | |
| 70 | 300 | 4.63 | 1.65 | 93 | 88 | 1.34E-01 | 2.21E+05 | " | |
| 71 | 300 | 4.63 | 1.65 | 107 | 88 | 3.40E-01 | 5.61E+05 | " | |
| 72 | 300 | 4.63 | 1.65 | 89 | 83 | 8.75E-02 | 1.44E+05 | " | |
| 73 | 300 | 4.63 | 1.65 | 94 | 97 | 2.55E-03 | 4.21E+03 | HA20-110,RO110-BOT | |
| 74 | 300 | 4.63 | 1.65 | 97 | 100 | 1.49E-02 | 2.45E+04 | " | |
| CONTINUE TRANSECT E3 NEW FILE<br>DEPTH INTERVAL 20-120M, ORIGINAL DATA INTEGRATED BOTTOM<br>0648 - 0907 HRS. 29 AUGUST 1983. | | | | | | | | | |
| 3 | 300 | 4.63 | 7.79 | 100 | 108 | 8.02E-03 | 6.25E+04 | HA20-100,RO100-300 | |
| 4 | 300 | 4.63 | 7.79 | 100 | 91 | 5.43E-04 | 4.23E+03 | HA | |
| 5 | 300 | 4.63 | 7.79 | 100 | 79 | 1.37E-04 | 1.07E+03 | " | |
| 6 | 300 | 4.63 | 7.79 | 100 | 84 | 1.30E-04 | 1.01E+03 | " | |
| 7 | 300 | 4.63 | 7.79 | 100 | 84 | 2.89E-05 | 2.25E+02 | " | |
| DEPTH INTERVAL 20-180M | | | | | | | | | |
| 8 | 300 | 4.63 | 7.79 | 160 | 150 | 2.14E-03 | 1.67E+04 | " | 18 |
| DEPTH INTERVAL 20-300M | | | | | | | | | |
| 9 | 300 | 4.63 | 7.79 | 208 | 160 | 1.72E-02 | 1.34E+05 | " | " |
| 10 | 300 | 4.63 | 7.79 | 170 | 96 | 4.68E-02 | 3.65E+05 | RO90-120,HA120-300 | |
| 11 | 300 | 4.63 | 7.79 | 153 | 82 | 1.69E-02 | 1.32E+05 | RO | |
| 12 | 300 | 4.63 | 7.79 | 100 | 116 | 7.13E-03 | 5.55E+04 | " | |
| 13 | 300 | 4.63 | 7.79 | 84 | 99 | 7.30E-04 | 5.69E+03 | " | |
| 14 | 300 | 4.63 | 7.79 | 81 | 99 | 1.78E-04 | 1.38E+03 | " | |
| 15 | 300 | 4.63 | 7.79 | 83 | 99 | 2.51E-03 | 1.95E+04 | " | |
| 16 | 300 | 4.63 | 7.79 | 88 | 108 | 9.19E-03 | 7.16E+04 | " | |
| 17 | 300 | 4.63 | 7.79 | 98 | 43 | 4.45E-04 | 3.47E+03 | " | |
| 18 | 300 | 4.63 | 7.79 | 109 | 34 | 5.99E-04 | 4.67E+03 | " | |
| 19 | 300 | 4.63 | 7.79 | 118 | 137 | 1.16E-02 | 9.03E+04 | " | |
| 20 | 300 | 4.63 | 7.79 | 125 | 41 | 6.62E-04 | 5.16E+03 | " | |
| 21 | 300 | 4.63 | 7.79 | 130 | 124 | 1.18E-02 | 9.16E+04 | " | |
| 22 | 300 | 4.63 | 7.79 | 147 | 155 | 6.65E-03 | 5.18E+04 | HA | |
| 23 | 300 | 4.63 | 7.79 | 214 | 175 | 2.35E-01 | 1.83E+06 | " | |

APPENDIX TABLE II/I TRANSECT E3 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 300 | 4.63 | 7.79 | 213 | 182 | 1.20E-01 | 9.36E+05 | HA | |
| 25 | 300 | 4.63 | 7.79 | 214 | 174 | 6.65E-02 | 5.19E+05 | " | |

TOTAL BIOMASS FOR TRANSECT E3 = 5.90E+06

APPENDIX TABLE II/1 (CONT'D) TRANSECT E4.

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 0926 - 1351 HRS. 29 AUGUST 1983

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 30 | 300 | 4.63 | 6.81 | 214 | 141 | 2.12E-03 | 1.45E+04 | HA | 20 |
| 31 | 300 | 4.63 | 6.81 | 213 | 195 | 1.50E-02 | 1.02E+05 | " | " |
| 32 | 300 | 4.63 | 6.81 | 210 | 163 | 1.50E-01 | 1.03E+06 | " | " |
| 33 | 300 | 4.63 | 6.81 | 186 | 160 | 2.39E-01 | 1.63E+06 | " | " |
| 34 | 300 | 4.63 | 6.81 | 151 | 164 | 6.14E-02 | 4.18E+05 | " | " |
| 35 | 300 | 4.63 | 6.81 | 132 | 129 | 4.47E-02 | 3.05E+05 | RO | |
| 36 | 300 | 4.63 | 6.81 | 120 | 138 | 4.85E-02 | 3.30E+05 | " | |
| 37 | 300 | 4.63 | 6.81 | 113 | 125 | 1.10E-02 | 7.48E+04 | " | |
| 38 | 300 | 4.63 | 6.81 | 108 | 122 | 1.55E-02 | 1.06E+05 | " | |
| 39 | 300 | 4.63 | 6.81 | 105 | 42 | 6.11E-05 | 4.16E+02 | " | |
| 40 | 300 | 4.63 | 6.81 | 101 | 115 | 1.26E-02 | 8.58E+04 | " | |
| 41 | 300 | 4.63 | 6.81 | 98 | 98 | 2.38E-04 | 1.62E+03 | " | |
| 42 | 300 | 4.63 | 6.81 | 92 | 29 | 8.50E-05 | 5.79E+02 | " | |
| 43 | 300 | 4.63 | 6.81 | 84 | 94 | 7.76E-04 | 5.29E+03 | " | |
| 44 | 300 | 4.63 | 6.81 | 78 | 88 | 5.85E-04 | 3.99E+03 | " | |
| 45 | 300 | 4.63 | 6.81 | 75 | 36 | 3.32E-05 | 2.26E+02 | " | |
| 46 | 300 | 4.63 | 6.81 | 77 | 87 | 3.85E-02 | 2.62E+05 | " | |
| 47 | 300 | 4.63 | 6.81 | 87 | 99 | 8.67E-04 | 5.91E+03 | " | |
| 48 | 300 | 4.63 | 6.81 | 95 | 54 | 1.13E-04 | 7.68E+02 | " | |
| 49 | 300 | 4.63 | 6.81 | 154 | 140 | 9.59E-03 | 6.54E+04 | HA | |
| 50 | 300 | 4.63 | 6.81 | 208 | 144 | 3.95E-02 | 2.69E+05 | " | |
| 51 | 300 | 4.63 | 6.81 | 214 | 168 | 5.10E-02 | 3.47E+05 | " | |
| 52 | 300 | 4.63 | 6.81 | 214 | 157 | 9.11E-03 | 6.21E+04 | " | |
| 53 | 300 | 4.63 | 6.81 | 214 | 151 | 6.34E-03 | 4.32E+04 | " | |
| 54 | 300 | 4.63 | 6.81 | 213 | 162 | 5.31E-03 | 3.62E+04 | " | |
| 55 | 79 | 4.63 | 1.79 | 199 | 159 | 1.03E-03 | 1.85E+03 | " | |
| 56 | 300 | 4.63 | 6.81 | 166 | 167 | 5.48E-04 | 3.73E+03 | " | |
| 57 | 300 | 4.63 | 6.81 | 101 | 108 | 3.39E-04 | 2.31E+03 | " | |
| 58 | 300 | 4.63 | 6.81 | 89 | 48 | 1.34E-04 | 9.11E+02 | " | |
| 59 | 300 | 4.63 | 6.81 | 121 | 106 | 2.51E-03 | 1.71E+04 | RO | |
| 60 | 300 | 4.63 | 6.81 | 157 | 158 | 1.18E-03 | 8.03E+03 | HA | |
| 61 | 300 | 4.63 | 6.81 | 167 | 151 | 1.26E-01 | 8.58E+05 | " | |
| 62 | 300 | 4.63 | 6.81 | 215 | 160 | 1.83E-01 | 1.25E+06 | " | |
| 63 | 300 | 4.63 | 6.81 | 215 | 164 | 9.67E-03 | 6.59E+04 | " | |
| 64 | 300 | 4.63 | 6.81 | 122 | 133 | 2.54E-02 | 1.73E+05 | RO | |
| 65 | 300 | 4.63 | 6.81 | 190 | 136 | 8.14E-03 | 5.55E+04 | HA | 19 |
| 66 | 300 | 4.63 | 6.81 | 215 | 102 | 2.00E-02 | 1.36E+05 | " | " |
| 67 | 300 | 4.63 | 6.81 | 215 | 95 | 1.95E-02 | 1.33E+05 | " | |
| 68 | 300 | 4.63 | 6.81 | 163 | 100 | 2.02E-02 | 1.38E+05 | " | |
| 69 | 300 | 4.63 | 6.81 | 77 | 85 | 2.59E-02 | 1.77E+05 | " | |
| 70 | 300 | 4.63 | 6.81 | 63 | 69 | 1.65E-02 | 1.13E+05 | HA20-70,RO70-300 | |

APPENDIX TABLE II/I TRANSECT E4 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 71 | 300 | 4.63 | 6.81 | 49 | 53 | 1.04E-02 | 7.11E+04 | .8RO/.2HE | |
| 72 | 300 | 4.63 | 6.81 | 34 | 50 | 1.43E-02 | 9.74E+04 | .5RO/.5HE | |
| 73 | 300 | 4.63 | 6.81 | 22 | 35 | 1.38E-02 | 9.43E+04 | " | |
| 74 | 300 | 4.63 | 6.81 | 14 | 32 | 1.38E-02 | 9.42E+04 | " | |
| 75 | 8 | 4.63 | 0.18 | 11 | 0 | 0.00E+00 | 0.00E+00 | " | |

TOTAL BIOMASS FOR TRANSECT E4 = 8.68E+06

APPENDIX TABLE II/1 TRANSECT E5 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1411 - 1543 HRS. 29 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 79 | 300 | 4.63 | 7.26 | 11 | 26 | 3.37E-02 | 2.44E+05 | HE | |
| 80 | 300 | 4.63 | 7.26 | 20 | 26 | 1.01E-01 | 7.36E+05 | " | |
| 81 | 300 | 4.63 | 7.26 | 33 | 43 | 4.58E-02 | 3.32E+05 | " | |
| 82 | 300 | 4.63 | 7.26 | 52 | 62 | 2.41E-02 | 1.75E+05 | " | |
| 83 | 300 | 4.63 | 7.26 | 77 | 76 | 1.30E-02 | 9.47E+04 | .7HA/.3HE | |
| 84 | 300 | 4.63 | 7.26 | 126 | 95 | 3.59E-02 | 2.61E+05 | HA | |
| 85 | 300 | 4.63 | 7.26 | 210 | 114 | 3.49E-02 | 2.54E+05 | " | |
| 86 | 300 | 4.63 | 7.26 | 216 | 147 | 8.76E-03 | 6.35E+04 | " | |
| 87 | 300 | 4.63 | 7.26 | 199 | 186 | 1.16E-02 | 8.44E+04 | " | |
| 88 | 300 | 4.63 | 7.26 | 148 | 146 | 4.57E-04 | 3.32E+03 | " | |
| 89 | 300 | 4.63 | 7.26 | 145 | 149 | 1.51E-03 | 1.09E+04 | " | |
| 90 | 300 | 4.63 | 7.26 | 197 | 164 | 7.78E-02 | 5.65E+05 | " | |
| 91 | 300 | 4.63 | 7.26 | 114 | 132 | 2.65E-04 | 1.92E+03 | " | |
| 92 | 300 | 4.63 | 7.26 | 112 | 126 | 2.51E-04 | 1.82E+03 | " | |
| 93 | 300 | 4.63 | 7.26 | 187 | 169 | 1.30E-03 | 9.43E+03 | " | |
| 94 | 250 | 4.63 | 6.05 | 216 | 162 | 2.41E-03 | 1.46E+04 | " | |
| CONTINUE TRANSECT E5 NEW FILE. 0635 - 0920 HRS. 30 AUGUST 1983. | | | | | | | | | |
| 2 | 300 | 4.63 | 7.46 | 207 | 140 | 2.05E-01 | 1.53E+06 | HA | |
| 3 | 300 | 4.63 | 7.46 | 208 | 141 | 3.57E-02 | 2.66E+05 | " | |
| 4 | 300 | 4.63 | 7.46 | 209 | 150 | 1.61E-02 | 1.20E+05 | " | |
| 5 | 300 | 4.63 | 7.46 | 188 | 167 | 4.94E-03 | 3.68E+04 | RO | |
| 6 | 300 | 4.63 | 7.46 | 93 | 104 | 5.96E-04 | 4.44E+03 | " | |
| 7 | 300 | 4.63 | 7.46 | 118 | 123 | 4.32E-03 | 3.22E+04 | " | |
| 8 | 300 | 4.63 | 7.46 | 95 | 104 | 7.69E-03 | 5.73E+04 | " | |
| 9 | 300 | 4.63 | 7.46 | 75 | 89 | 2.00E-02 | 1.49E+05 | " | |
| 10 | 300 | 4.63 | 7.46 | 76 | 35 | 2.92E-04 | 2.17E+03 | " | |
| 11 | 300 | 4.63 | 7.46 | 78 | 31 | 2.46E-04 | 1.84E+03 | " | |
| 12 | 300 | 4.63 | 7.46 | 82 | 57 | 2.20E-04 | 1.64E+03 | " | |
| 13 | 300 | 4.63 | 7.46 | 86 | 105 | 6.22E-04 | 4.64E+03 | " | |
| 14 | 300 | 4.63 | 7.46 | 96 | 89 | 1.25E-03 | 9.32E+03 | " | |
| 15 | 300 | 4.63 | 7.46 | 108 | 94 | 4.79E-03 | 3.57E+04 | " | |
| 16 | 300 | 4.63 | 7.46 | 108 | 59 | 4.51E-03 | 3.37E+04 | HE20-120,RO120-300 | |
| 17 | 300 | 4.63 | 7.46 | 106 | 71 | 4.83E-03 | 3.60E+04 | " | |
| 18 | 300 | 4.63 | 7.46 | 109 | 86 | 2.51E+00 | 1.87E+07 | " | |
| 19 | 300 | 4.63 | 7.46 | 110 | 46 | 2.52E-01 | 1.88E+06 | " | 22 |
| 20 | 300 | 4.63 | 7.46 | 116 | 114 | 6.67E-03 | 4.97E+04 | RO | " |
| 21 | 300 | 4.63 | 7.46 | 125 | 136 | 4.38E-02 | 3.26E+05 | " | |
| 22 | 300 | 4.63 | 7.46 | 125 | 119 | 8.34E-02 | 6.22E+05 | HA | 21 |
| 23 | 300 | 4.63 | 7.46 | 143 | 151 | 2.02E-01 | 1.51E+06 | " | " |
| 24 | 300 | 4.63 | 7.46 | 198 | 135 | 6.51E-01 | 4.86E+06 | " | |

APPENDIX TABLE II/I TRANSECT E5 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 300 | 4.63 | 7.46 | 215 | 108 | 1.30E-01 | 9.66E+05 | HA | |
| 26 | 300 | 4.63 | 7.46 | 215 | 60 | 3.62E-03 | 2.70E+04 | " | |
| 27 | 300 | 4.63 | 7.46 | 215 | 52 | 1.96E-03 | 1.46E+04 | " | |
| 28 | 300 | 4.63 | 7.46 | 214 | 83 | 2.05E-03 | 1.53E+04 | " | |
| 29 | 111 | 4.63 | 2.76 | 214 | 73 | 1.82E-03 | 5.03E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E5 = 3.42E+07

APPENDIX TABLE II/1 (CONT'D) TRANSECT E6.

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 0943 - 1417 HRS. 30 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 34 | 300 | 4.63 | 7.36 | 214 | 130 | 2.08E-03 | 1.53E+04 | HA | |
| 35 | 300 | 4.63 | 7.36 | 214 | 42 | 7.23E-04 | 5.32E+03 | " | |
| 36 | 300 | 4.63 | 7.36 | 214 | 67 | 1.82E-03 | 1.34E+04 | " | |
| 37 | 300 | 4.63 | 7.36 | 214 | 47 | 1.46E-03 | 1.07E+04 | " | |
| 38 | 300 | 4.63 | 7.36 | 214 | 40 | 2.54E-03 | 1.87E+04 | " | |
| 39 | 300 | 4.63 | 7.36 | 215 | 42 | 1.68E-03 | 1.24E+04 | " | |
| 40 | 300 | 4.63 | 7.36 | 215 | 79 | 5.61E-03 | 4.13E+04 | " | |
| 41 | 300 | 4.63 | 7.36 | 215 | 184 | 1.45E-01 | 1.07E+06 | " | |
| 42 | 300 | 4.63 | 7.36 | 215 | 172 | 5.60E-01 | 4.12E+06 | " | |
| 43 | 300 | 4.63 | 7.36 | 215 | 170 | 3.14E-01 | 2.31E+06 | " | |
| 44 | 300 | 4.63 | 7.36 | 142 | 135 | 1.67E-02 | 1.23E+05 | " | |
| 45 | 300 | 4.63 | 7.36 | 120 | 31 | 4.12E-03 | 3.03E+04 | RO | |
| 46 | 300 | 4.63 | 7.36 | 116 | 38 | 3.22E-03 | 2.37E+04 | " | |
| 47 | 300 | 4.63 | 7.36 | 116 | 61 | 5.09E-03 | 3.74E+04 | " | |
| 48 | 300 | 4.63 | 7.36 | 114 | 48 | 3.54E-03 | 2.60E+04 | " | |
| 49 | 300 | 4.63 | 7.36 | 109 | 58 | 1.62E-03 | 1.19E+04 | " | |
| 50 | 300 | 4.63 | 7.36 | 104 | 55 | 2.45E-03 | 1.80E+04 | " | |
| 51 | 300 | 4.63 | 7.36 | 98 | 87 | 1.46E+00 | 1.07E+07 | HE20-110,RO110-300 | |
| 52 | 300 | 4.63 | 7.36 | 88 | 102 | 5.09E-03 | 3.75E+04 | RO | |
| 53 | 300 | 4.63 | 7.36 | 76 | 33 | 5.90E-04 | 4.34E+03 | " | |
| 54 | 300 | 4.63 | 7.36 | 72 | 28 | 6.80E-04 | 5.01E+03 | " | |
| 55 | 300 | 4.63 | 7.36 | 67 | 78 | 1.60E-03 | 1.18E+04 | " | 23 |
| 56 | 300 | 4.63 | 7.36 | 65 | 33 | 3.58E-04 | 2.63E+03 | " | " |
| 57 | 300 | 4.63 | 7.36 | 67 | 27 | 1.75E-04 | 1.29E+03 | " | " |
| 58 | 300 | 4.63 | 7.36 | 73 | 90 | 2.30E-03 | 1.69E+04 | " | " |
| 59 | 300 | 4.63 | 7.36 | 80 | 27 | 5.84E-05 | 4.30E+02 | " | |
| 60 | 300 | 4.63 | 7.36 | 145 | 164 | 4.34E-02 | 3.19E+05 | HA | |
| 61 | 300 | 4.63 | 7.36 | 199 | 163 | 7.05E-02 | 5.19E+05 | " | |
| 62 | 163 | 4.63 | 4.00 | 170 | 167 | 1.03E-01 | 4.14E+05 | " | |
| 63 | 300 | 4.63 | 7.36 | 175 | 154 | 6.49E-02 | 4.77E+05 | " | |
| 64 | 300 | 4.63 | 7.36 | 87 | 36 | 6.45E-05 | 4.75E+02 | RO | |
| 65 | 300 | 4.63 | 7.36 | 79 | 27 | 2.27E-06 | 1.67E+01 | " | |
| 66 | 300 | 4.63 | 7.36 | 80 | 27 | 2.19E-06 | 1.61E+01 | " | |
| 67 | 300 | 4.63 | 7.36 | 82 | 89 | 6.51E-05 | 4.79E+02 | " | |
| 68 | 300 | 4.63 | 7.36 | 83 | 95 | 1.52E-04 | 1.12E+03 | " | |
| 69 | 300 | 4.63 | 7.36 | 165 | 134 | 1.36E-02 | 9.98E+04 | HA | |
| 70 | 300 | 4.63 | 7.36 | 161 | 140 | 5.02E-03 | 3.69E+04 | " | |
| 71 | 300 | 4.63 | 7.36 | 201 | 168 | 2.46E-03 | 1.81E+04 | " | |
| 72 | 300 | 4.63 | 7.36 | 216 | 149 | 2.71E-02 | 2.00E+05 | " | |
| 73 | 300 | 4.63 | 7.36 | 216 | 104 | 2.12E-01 | 1.56E+06 | " | |
| 74 | 300 | 4.63 | 7.36 | 192 | 108 | 1.32E-01 | 9.68E+05 | " | |
| 75 | 106 | 4.63 | 2.60 | 151 | 134 | 1.77E-02 | 4.61E+04 | " | |

APPENDIX TABLE II/1 TRANSECT E6 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 76 | 300 | 4.63 | 7.36 | 109 | 121 | 7.47E-03 | 5.49E+04 | HA | |
| 77 | 300 | 4.63 | 7.36 | 70 | 68 | 1.29E-02 | 9.46E+04 | HE | |
| 78 | 300 | 4.63 | 7.36 | 44 | 56 | 4.24E-03 | 3.12E+04 | " | |
| 79 | 300 | 4.63 | 7.36 | 28 | 47 | 3.38E-03 | 2.49E+04 | " | |
| 80 | 235 | 4.63 | 5.76 | 18 | 37 | 1.02E-03 | 5.86E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E6 = 2.36E+07

APPENDIX TABLE II/1 TRANSECT E7 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1432 - 1939 HRS. 30 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 84 | 300 | 4.63 | 6.90 | 18 | 26 | 2.67E-04 | 1.84E+03 | HE | |
| 85 | 300 | 4.63 | 6.90 | 34 | 49 | 1.04E-02 | 7.20E+04 | " | |
| 86 | 300 | 4.63 | 6.90 | 58 | 53 | 7.58E-03 | 5.23E+04 | " | |
| 87 | 300 | 4.63 | 6.90 | 102 | 104 | 2.64E-02 | 1.82E+05 | HA | 25 |
| 88 | 300 | 4.63 | 6.90 | 153 | 108 | 3.99E-02 | 2.76E+05 | " | " |
| 89 | 300 | 4.63 | 6.90 | 199 | 108 | 7.83E-02 | 5.41E+05 | " | |
| 90 | 300 | 4.63 | 6.90 | 155 | 130 | 2.28E-02 | 1.57E+05 | " | |
| 91 | 300 | 4.63 | 6.90 | 216 | 158 | 8.49E-03 | 5.86E+04 | " | |
| 92 | 300 | 4.63 | 6.90 | 205 | 148 | 3.00E-02 | 2.07E+05 | " | |
| 93 | 300 | 4.63 | 6.90 | 107 | 124 | 3.17E-03 | 2.19E+04 | " | |
| 94 | 300 | 4.63 | 6.90 | 80 | 94 | 1.66E-03 | 1.15E+04 | RO | |
| 95 | 300 | 4.63 | 6.90 | 82 | 98 | 1.79E-03 | 1.23E+04 | " | |
| 96 | 300 | 4.63 | 6.90 | 82 | 81 | 1.22E-06 | 8.45E+00 | " | |
| 97 | 300 | 4.63 | 6.90 | 123 | 121 | 4.90E-03 | 3.38E+04 | " | |
| 98 | 300 | 4.63 | 6.90 | 112 | 117 | 1.18E-02 | 8.14E+04 | " | |
| 99 | 300 | 4.63 | 6.90 | 162 | 176 | 1.64E-03 | 1.13E+04 | " | |
| 100 | 300 | 4.63 | 6.90 | 163 | 167 | 5.67E-03 | 3.92E+04 | " | |
| 101 | 300 | 4.63 | 6.90 | 89 | 92 | 1.40E-03 | 9.65E+03 | " | |
| 102 | 300 | 4.63 | 6.90 | 79 | 88 | 2.87E-04 | 1.98E+03 | " | |
| 103 | 300 | 4.63 | 6.90 | 98 | 90 | 2.88E-03 | 1.99E+04 | " | |
| 104 | 300 | 4.63 | 6.90 | 94 | 104 | 5.59E-04 | 3.86E+03 | " | |
| 105 | 300 | 4.63 | 6.90 | 70 | 52 | 5.01E-05 | 3.46E+02 | " | |
| 106 | 300 | 4.63 | 6.90 | 63 | 76 | 1.88E-03 | 1.30E+04 | " | |
| 107 | 300 | 4.63 | 6.90 | 66 | 35 | 3.35E-04 | 2.31E+03 | " | |
| 108 | 300 | 4.63 | 6.90 | 65 | 76 | 1.33E-03 | 9.20E+03 | " | |
| 109 | 300 | 4.63 | 6.90 | 69 | 85 | 7.92E-04 | 5.47E+03 | " | |
| 110 | 300 | 4.63 | 6.90 | 83 | 55 | 3.95E-04 | 2.73E+03 | " | |
| 111 | 300 | 4.63 | 6.90 | 87 | 91 | 3.35E-02 | 2.31E+05 | HE | |
| 112 | 300 | 4.63 | 6.90 | 90 | 92 | 2.37E-04 | 1.63E+03 | " | |
| 113 | 300 | 4.63 | 6.90 | 95 | 47 | 5.41E-05 | 3.74E+02 | " | |
| 114 | 300 | 4.63 | 6.90 | 107 | 90 | 3.20E-02 | 2.21E+05 | " | |
| 115 | 300 | 4.63 | 6.90 | 104 | 39 | 1.70E-04 | 1.17E+03 | RO | |
| 116 | 300 | 4.63 | 6.90 | 103 | 117 | 8.85E-04 | 6.11E+03 | " | |
| 117 | 300 | 4.63 | 6.90 | 104 | 120 | 7.44E-03 | 5.14E+04 | " | |
| 118 | 300 | 4.63 | 6.90 | 107 | 108 | 5.39E-04 | 3.72E+03 | " | |
| 119 | 300 | 4.63 | 6.90 | 108 | 43 | 1.81E-04 | 1.25E+03 | " | |
| 120 | 300 | 4.63 | 6.90 | 112 | 31 | 3.70E-04 | 2.56E+03 | " | |
| 121 | 300 | 4.63 | 6.90 | 114 | 30 | 7.21E-04 | 4.97E+03 | " | |
| 122 | 300 | 4.63 | 6.90 | 123 | 56 | 6.81E-04 | 4.70E+03 | " | |
| 123 | 300 | 4.63 | 6.90 | 172 | 156 | 3.48E-01 | 2.40E+06 | HA | |
| 124 | 300 | 4.63 | 6.90 | 214 | 187 | 1.33E-01 | 9.19E+05 | " | |
| 125 | 300 | 4.63 | 6.90 | 214 | 214 | 8.29E-02 | 5.72E+05 | " | |

APPENDIX TABLE II/1 TRANSECT E7 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 126 | 300 | 4.63 | 6.90 | 214 | 83 | 5.15E-04 | 3.55E+03 | HA | |
| 127 | 300 | 4.63 | 6.90 | 214 | 87 | 6.28E-04 | 4.34E+03 | " | |
| 128 | 300 | 4.63 | 6.90 | 214 | 96 | 1.04E-03 | 7.16E+03 | " | 29 |
| 129 | 300 | 4.63 | 6.90 | 214 | 180 | 3.13E-02 | 2.16E+05 | " | " |
| 130 | 300 | 4.63 | 6.90 | 206 | 178 | 1.40E-01 | 9.64E+05 | " | " |
| 131 | 300 | 4.63 | 6.90 | 215 | 174 | 8.57E-03 | 5.92E+04 | " | |
| 132 | 300 | 4.63 | 6.90 | 215 | 148 | 3.14E-03 | 2.17E+04 | " | |
| 133 | 300 | 4.63 | 6.90 | 215 | 189 | 7.97E-03 | 5.50E+04 | " | |
| 134 | 300 | 4.63 | 6.90 | 214 | 165 | 4.38E-03 | 3.02E+04 | " | |
| 135 | 55 | 4.63 | 1.27 | 214 | 161 | 3.49E-03 | 4.42E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E7 = 7.61E+06

APPENDIX TABLE II/1 TRANSECT E8 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 2009 - 2049 HRS. 30 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 140 | 300 | 4.63 | 7.13 | 214 | 146 | 5.20E-03 | 3.71E+04 | HA | |
| 141 | 300 | 4.63 | 7.13 | 214 | 165 | 5.60E-03 | 4.00E+04 | " | |
| 142 | 300 | 4.63 | 7.13 | 213 | 162 | 7.29E-03 | 5.20E+04 | " | |
| 143 | 300 | 4.63 | 7.13 | 213 | 152 | 5.73E-03 | 4.09E+04 | " | |
| 144 | 300 | 4.63 | 7.13 | 198 | 175 | 1.23E-02 | 8.76E+04 | " | |
| 145 | 300 | 4.63 | 7.13 | 210 | 164 | 2.81E-02 | 2.01E+05 | " | |
| 146 | 300 | 4.63 | 7.13 | 158 | 126 | 3.54E-02 | 2.52E+05 | " | |
| 147 | 208 | 4.63 | 4.95 | 137 | 120 | 2.66E-02 | 1.32E+05 | " | |

PO# 140-147 DONE AFTER DARK, SINGLE FISH SCATTER
UNABLE TO IDENT FROM ECHOGRAM, SUGGEST SAME AS TRANSECT E7

CONTINUE TRANSECT E8 NEW FILE
0632 - 0728 HRS. 31 AUGUST 1983.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3 | 300 | 4.63 | 7.51 | 164 | 157 | 3.43E-03 | 2.57E+04 | HA |
| 4 | 300 | 4.63 | 7.51 | 203 | 157 | 5.63E-03 | 4.23E+04 | " |
| 5 | 300 | 4.63 | 7.51 | 211 | 114 | 4.33E-02 | 3.25E+05 | " |
| 6 | 300 | 4.63 | 7.51 | 211 | 104 | 2.36E-02 | 1.77E+05 | " |
| 7 | 300 | 4.63 | 7.51 | 188 | 141 | 6.32E-03 | 4.75E+04 | " |
| 8 | 300 | 4.63 | 7.51 | 141 | 129 | 6.77E-03 | 5.08E+04 | " |
| 9 | 300 | 4.63 | 7.51 | 133 | 109 | 1.22E-02 | 9.15E+04 | " |
| 10 | 300 | 4.63 | 7.51 | 90 | 89 | 1.61E-02 | 1.21E+05 | " |
| 11 | 300 | 4.63 | 7.51 | 33 | 27 | 1.94E-01 | 1.46E+06 | HE |
| 12 | 108 | 4.63 | 2.70 | 16 | 25 | 6.32E-02 | 1.71E+05 | " |

TOTAL BIOMASS FOR TRANSECT E8 = 3.35E+06

APPENDIX TABLE II/1 TRANSECT E9 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 0743 - 1025 HRS. 31 AUGUST 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 300 | 4.63 | 7.43 | 19 | 31 | 1.24E-02 | 9.25E+04 | HE | |
| 17 | 300 | 4.63 | 7.43 | 73 | 63 | 2.62E-02 | 1.95E+05 | HA | |
| 18 | 300 | 4.63 | 7.43 | 142 | 94 | 1.44E-02 | 1.07E+05 | " | |
| 19 | 300 | 4.63 | 7.43 | 208 | 124 | 1.03E-02 | 7.65E+04 | " | |
| 20 | 300 | 4.63 | 7.43 | 211 | 130 | 1.97E-02 | 1.47E+05 | " | |
| 21 | 300 | 4.63 | 7.43 | 200 | 143 | 2.16E-02 | 1.61E+05 | " | |
| 22 | 300 | 4.63 | 7.43 | 130 | 126 | 8.17E-03 | 6.07E+04 | " | |
| 23 | 300 | 4.63 | 7.43 | 161 | 125 | 3.80E-02 | 2.83E+05 | " | |
| 24 | 300 | 4.63 | 7.43 | 180 | 133 | 2.39E-02 | 1.78E+05 | " | |
| | | | | | | | | | |
| | | WIDTH INCREASED TO 3.75 NMI FOR OMITTED SECTION OF TRANSECT E8, THIS WIDTH USED IN BIOMASS CALC. | | | | | | | |
| 25 | 300 | 6.95 | 11.15 | 174 | 156 | 2.16E-02 | 2.41E+05 | " | |
| 26 | 300 | 6.95 | 11.15 | 153 | 146 | 1.77E-02 | 1.98E+05 | " | |
| 27 | 300 | 6.95 | 11.15 | 139 | 144 | 2.30E-03 | 2.56E+04 | " | |
| 28 | 300 | 6.95 | 11.15 | 83 | 99 | 3.71E-04 | 4.14E+03 | " | |
| 29 | 300 | 6.95 | 11.15 | 79 | 94 | 8.17E-05 | 9.11E+02 | " | |
| 30 | 300 | 6.95 | 11.15 | 83 | 80 | 1.52E-03 | 1.70E+04 | " | |
| 31 | 300 | 6.95 | 11.15 | 140 | 127 | 3.22E-04 | 3.59E+03 | " | |
| 32 | 300 | 6.95 | 11.15 | 148 | 154 | 1.61E-03 | 1.79E+04 | " | 26 |
| 33 | 300 | 6.95 | 11.15 | 147 | 148 | 2.69E-03 | 3.00E+04 | " | " |
| 34 | 300 | 6.95 | 11.15 | 146 | 137 | 1.57E-02 | 1.75E+05 | " | " |
| 35 | 300 | 6.95 | 11.15 | 145 | 143 | 6.14E-02 | 6.84E+05 | " | |
| 36 | 300 | 6.95 | 11.15 | 136 | 139 | 6.77E-02 | 7.55E+05 | " | |
| 37 | 300 | 6.95 | 11.15 | 81 | 100 | 4.18E-05 | 4.66E+02 | RO | |
| 38 | 300 | 6.95 | 11.15 | 76 | 91 | 6.97E-05 | 7.77E+02 | " | |
| 39 | 300 | 6.95 | 11.15 | 75 | 86 | 1.19E-03 | 1.33E+04 | " | |
| 40 | 300 | 6.95 | 11.15 | 77 | 65 | 2.72E-04 | 3.03E+03 | " | |
| 41 | 300 | 6.95 | 11.15 | 81 | 97 | 8.32E-04 | 9.27E+03 | " | |
| 42 | 300 | 6.95 | 11.15 | 88 | 102 | 1.47E-04 | 1.63E+03 | " | |
| | | CONTINUE TRANSECT E9 NEW FILE SHIP'S COURSE 270 DEG TRUE 0628 - 0914 HRS. 5 SEPTEMBER 1983. | | | | | | | |
| 2 | 100 | 6.94 | 3.60 | 101 | 110 | 1.20E-04 | 4.31E+02 | .9HA/.1RO | |
| 3 | 300 | 6.95 | 10.81 | 88 | 95 | 2.08E-03 | 2.24E+04 | " | |
| 4 | 300 | 6.95 | 10.81 | 90 | 95 | 6.02E-03 | 6.51E+04 | " | |
| 5 | 300 | 6.95 | 10.81 | 92 | 104 | 1.84E-03 | 1.99E+04 | " | |
| 6 | 300 | 6.95 | 10.81 | 93 | 106 | 1.09E-03 | 1.18E+04 | " | |
| 7 | 300 | 6.95 | 10.81 | 94 | 110 | 2.51E-03 | 2.71E+04 | " | |
| 8 | 300 | 6.95 | 10.81 | 96 | 91 | 4.64E-03 | 5.01E+04 | " | |

APPENDIX TABLE II/1 TRANSECT E9 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 9 | 300 | 6.95 | 10.81 | 100 | 107 | 4.74E-03 | 5.12E+04 | .9HA/.1RO | |
| 10 | 300 | 6.95 | 10.81 | 102 | 114 | 1.83E-03 | 1.98E+04 | " | |
| 11 | 300 | 6.95 | 10.81 | 102 | 112 | 1.79E-03 | 1.93E+04 | " | |
| 12 | 300 | 6.95 | 10.81 | 100 | 100 | 1.25E-03 | 1.35E+04 | " | |
| 13 | 300 | 6.95 | 10.81 | 100 | 105 | 9.21E-04 | 9.96E+03 | " | |
| 14 | 300 | 6.95 | 10.81 | 101 | 113 | 2.34E-03 | 2.53E+04 | " | |
| 15 | 300 | 6.95 | 10.81 | 104 | 112 | 2.07E-03 | 2.24E+04 | " | |
| 16 | 300 | 6.95 | 10.81 | 102 | 112 | 1.89E-03 | 2.04E+04 | " | |
| 17 | 300 | 6.95 | 10.81 | 105 | 112 | 9.89E-03 | 1.07E+05 | " | |
| 18 | 300 | 6.95 | 10.81 | 109 | 122 | 1.12E-02 | 1.21E+05 | " | |
| WIDTH DECREASED TO 2.5 nmi | | | | | | | | | |
| 19 | 300 | 4.63 | 7.20 | 117 | 125 | 9.55E-03 | 6.88E+04 | " | |
| 20 | 300 | 4.63 | 7.20 | 126 | 125 | 1.25E-02 | 8.99E+04 | " | 30 |
| 21 | 300 | 4.63 | 7.20 | 131 | 126 | 5.51E-02 | 3.97E+05 | " | |
| 22 | 300 | 4.63 | 7.20 | 132 | 131 | 1.92E-02 | 1.38E+05 | " | |
| 23 | 300 | 4.63 | 7.20 | 155 | 137 | 1.58E-02 | 1.14E+05 | " | |
| 24 | 300 | 4.63 | 7.20 | 220 | 193 | 2.39E-02 | 1.72E+05 | " | |
| 25 | 300 | 4.63 | 7.20 | 220 | 143 | 5.65E-03 | 4.07E+04 | " | |
| 26 | 300 | 4.63 | 7.20 | 220 | 178 | 5.87E-03 | 4.23E+04 | " | |
| 27 | 300 | 4.63 | 7.20 | 228 | 206 | 3.45E-03 | 2.49E+04 | " | |
| 28 | 300 | 4.63 | 7.20 | 280 | 245 | 1.43E-02 | 1.03E+05 | " | |
| 29 | 300 | 4.63 | 7.20 | 280 | 151 | 8.89E-03 | 6.40E+04 | " | |
| 30 | 85 | 4.63 | 2.04 | 280 | 100 | 4.42E-03 | 9.02E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E9 = 5.35E+06

APPENDIX TABLE II/1 TRANSECT E10 (CONT'D)

SHIP'S COURSE 270 DEG TRUE. 0648 - 0840 HRS. 1 SEPTEMBER 1983.
DEPTH INTERVAL 20-200M, ORIGINAL DATA INTEGRATED BOT PO# 2&3

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 176 | 4.63 | 4.16 | 180 | 135 | 5.66E-02 | 2.36E+05 | HA | |
| 3 | 243 | 4.63 | 5.75 | 180 | 33 | 1.28E-02 | 7.37E+04 | " | |
| DEPTH INTERVAL 20-300M | | | | | | | | | |
| 4 | 300 | 4.63 | 7.09 | 254 | 52 | 1.16E-02 | 8.23E+04 | " | |
| 5 | 300 | 4.63 | 7.09 | 164 | 60 | 1.97E-02 | 1.40E+05 | " | |
| 6 | 300 | 4.63 | 7.09 | 84 | 65 | 9.43E-03 | 6.69E+04 | " | |
| 7 | 300 | 4.63 | 7.09 | 79 | 78 | 1.50E-02 | 1.06E+05 | " | |
| 8 | 300 | 4.63 | 7.09 | 96 | 110 | 3.74E-03 | 2.66E+04 | " | |
| 9 | 300 | 4.63 | 7.09 | 238 | 104 | 2.70E-02 | 1.92E+05 | " | |
| 10 | 300 | 4.63 | 7.09 | 214 | 123 | 4.81E-02 | 3.41E+05 | " | |
| 11 | 300 | 4.63 | 7.09 | 124 | 123 | 3.56E-03 | 2.53E+04 | " | |
| 12 | 300 | 4.63 | 7.09 | 92 | 102 | 2.96E-03 | 2.10E+04 | RO | |
| 13 | 300 | 4.63 | 7.09 | 80 | 87 | 6.47E-02 | 4.59E+05 | " | |
| 14 | 300 | 4.63 | 7.09 | 82 | 94 | 4.44E-04 | 3.15E+03 | " | |
| 15 | 300 | 4.63 | 7.09 | 81 | 96 | 3.07E-03 | 2.18E+04 | " | |
| 16 | 300 | 4.63 | 7.09 | 92 | 107 | 9.98E-03 | 7.08E+04 | " | |
| 17 | 300 | 4.63 | 7.09 | 141 | 134 | 3.21E-03 | 2.28E+04 | " | |
| 18 | 300 | 4.63 | 7.09 | 140 | 134 | 6.58E-04 | 4.67E+03 | " | |
| 19 | 300 | 4.63 | 7.09 | 143 | 139 | 2.63E-03 | 1.87E+04 | " | |
| 20 | 293 | 4.63 | 6.93 | 146 | 77 | 8.72E-02 | 6.04E+05 | " | |
| CONTINUE TRANSECT E10 NEW FILE. SHIP'S COURSE 90 DEG TRUE. 0938 - 1258 HRS. 5 SEPTEMBER 1983. | | | | | | | | | |
| 35 | 300 | 4.63 | 8.24 | 280 | 63 | 2.85E-03 | 2.35E+04 | .9HA/.1RO | |
| 36 | 300 | 4.63 | 8.24 | 280 | 96 | 3.28E-03 | 2.70E+04 | " | |
| 37 | 300 | 4.63 | 8.24 | 279 | 259 | 3.58E-02 | 2.95E+05 | " | |
| 38 | 300 | 4.63 | 8.24 | 280 | 244 | 9.91E-03 | 8.17E+04 | " | |
| 39 | 300 | 4.63 | 8.24 | 280 | 184 | 8.42E-03 | 6.94E+04 | " | |
| 40 | 300 | 4.63 | 8.24 | 280 | 213 | 5.34E-03 | 4.40E+04 | " | |
| 41 | 300 | 4.63 | 8.24 | 280 | 220 | 2.07E-02 | 1.71E+05 | " | |
| 42 | 300 | 4.63 | 8.24 | 191 | 166 | 3.48E-02 | 2.87E+05 | " | |
| 43 | 300 | 4.63 | 8.24 | 121 | 126 | 2.01E-02 | 1.66E+05 | " | |
| 44 | 300 | 4.63 | 8.24 | 112 | 126 | 6.52E-02 | 5.37E+05 | HE | |
| 45 | 300 | 4.63 | 8.24 | 112 | 118 | 3.36E-01 | 2.77E+06 | " | |
| 46 | 300 | 4.63 | 8.24 | 115 | 120 | 1.18E-01 | 9.75E+05 | RO20-120,HE120-BOT | |
| 47 | 300 | 4.63 | 8.24 | 115 | 109 | 6.46E-02 | 5.33E+05 | RO | |
| 48 | 300 | 4.63 | 8.24 | 110 | 107 | 2.65E-02 | 2.19E+05 | " | |
| 49 | 300 | 4.63 | 8.24 | 110 | 124 | 5.00E-03 | 4.12E+04 | " | |
| 50 | 300 | 4.63 | 8.24 | 110 | 120 | 1.68E-03 | 1.38E+04 | " | |

APPENDIX TABLE II/1 TRANSECT E10 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 51 | 300 | 4.63 | 8.24 | 110 | 121 | 9.26E-04 | 7.64E+03 | RO | |
| 52 | 300 | 4.63 | 8.24 | 109 | 117 | 1.37E-02 | 1.13E+05 | " | |
| 53 | 300 | 4.63 | 8.24 | 107 | 113 | 1.69E-02 | 1.39E+05 | " | |
| 54 | 300 | 4.63 | 8.24 | 112 | 127 | 5.01E-03 | 4.13E+04 | " | |
| 55 | 300 | 4.63 | 8.24 | 110 | 127 | 7.01E-03 | 5.77E+04 | " | |
| 56 | 300 | 4.63 | 8.24 | 106 | 120 | 3.40E-03 | 2.80E+04 | " | |
| 57 | 300 | 4.63 | 8.24 | 98 | 112 | 3.46E-04 | 2.85E+03 | " | |
| 58 | 300 | 4.63 | 8.24 | 96 | 107 | 3.58E-03 | 2.95E+04 | " | |
| 59 | 300 | 4.63 | 8.24 | 93 | 102 | 2.43E-04 | 2.00E+03 | " | |
| 60 | 300 | 4.63 | 8.24 | 92 | 109 | 1.43E-04 | 1.18E+03 | " | |
| 61 | 300 | 4.63 | 8.24 | 128 | 135 | 6.65E-04 | 5.48E+03 | " | |
| 62 | 300 | 4.63 | 8.24 | 117 | 132 | 1.18E-03 | 9.74E+03 | " | |
| 63 | 300 | 4.63 | 8.24 | 91 | 106 | 4.12E-04 | 3.39E+03 | " | |
| 64 | 300 | 4.63 | 8.24 | 84 | 80 | 8.76E-05 | 7.22E+02 | " | |
| 65 | 300 | 4.63 | 8.24 | 81 | 99 | 9.31E-04 | 7.68E+03 | " | |
| 66 | 300 | 4.63 | 8.24 | 79 | 94 | 2.76E-03 | 2.27E+04 | " | |
| 67 | 300 | 4.63 | 8.24 | 85 | 53 | 2.59E-06 | 2.14E+01 | " | |
| 68 | 150 | 4.63 | 4.12 | 143 | 139 | 1.67E-02 | 6.88E+04 | HA | |

TOTAL BIOMASS FOR TRANSECT E10 = 9.32E+06

APPENDIX TABLE II/1 TRANSECT E11 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 0856 - 1058 HRS. 1 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 300 | 4.63 | 7.77 | 147 | 110 | 2.60E-02 | 2.02E+05 | HA | |
| 25 | 300 | 4.63 | 7.77 | 138 | 103 | 6.73E-03 | 5.23E+04 | " | |
| 26 | 300 | 4.63 | 7.77 | 131 | 116 | 2.29E-03 | 1.78E+04 | " | |
| 27 | 300 | 4.63 | 7.77 | 132 | 123 | 1.80E-03 | 1.40E+04 | " | |
| 28 | 300 | 4.63 | 7.77 | 104 | 104 | 1.22E-03 | 9.45E+03 | " | |
| 29 | 300 | 4.63 | 7.77 | 73 | 83 | 2.06E-04 | 1.60E+03 | " | |
| 30 | 300 | 4.63 | 7.77 | 72 | 88 | 7.14E-05 | 5.55E+02 | " | |
| 31 | 300 | 4.63 | 7.77 | 73 | 84 | 3.71E-04 | 2.88E+03 | " | |
| 32 | 300 | 4.63 | 7.77 | 76 | 90 | 7.97E-04 | 6.20E+03 | " | |
| 33 | 300 | 4.63 | 7.77 | 150 | 115 | 8.54E-02 | 6.64E+05 | " | |
| 34 | 300 | 4.63 | 7.77 | 177 | 124 | 9.42E-02 | 7.33E+05 | " | |
| 35 | 300 | 4.63 | 7.77 | 234 | 119 | 7.83E-02 | 6.09E+05 | " | |
| 36 | 300 | 4.63 | 7.77 | 244 | 119 | 6.95E-02 | 5.40E+05 | " | |
| 37 | 300 | 4.63 | 7.77 | 215 | 132 | 3.46E-02 | 2.69E+05 | " | |
| 38 | 300 | 4.63 | 7.77 | 182 | 134 | 1.54E-02 | 1.19E+05 | " | |
| 39 | 300 | 4.63 | 7.77 | 200 | 122 | 1.94E-02 | 1.50E+05 | " | |
| 40 | 300 | 4.63 | 7.77 | 252 | 127 | 8.72E-03 | 6.78E+04 | " | |
| 41 | 300 | 4.63 | 7.77 | 258 | 80 | 3.23E-02 | 2.51E+05 | " | |
| 42 | 300 | 4.63 | 7.77 | 247 | 76 | 3.84E-02 | 2.98E+05 | " | |
| 43 | 300 | 4.63 | 7.77 | 232 | 88 | 1.31E-02 | 1.01E+05 | " | |
| 44 | 123 | 4.63 | 3.19 | 175 | 156 | 6.86E-03 | 2.19E+04 | " | |
| | | | | | | | | | |
| | | | | | | | | | |
| 72 | 300 | 4.63 | 6.79 | 154 | 122 | 2.57E-03 | 1.75E+04 | HA | |
| 73 | 300 | 4.63 | 6.79 | 143 | 151 | 1.13E-03 | 7.70E+03 | " | |
| 74 | 300 | 4.63 | 6.79 | 134 | 138 | 1.19E-03 | 8.11E+03 | " | |
| 75 | 300 | 4.63 | 6.79 | 126 | 137 | 1.13E-03 | 7.69E+03 | " | |
| 76 | 300 | 4.63 | 6.79 | 84 | 101 | 4.75E-05 | 3.23E+02 | " | |
| 77 | 300 | 4.63 | 6.79 | 90 | 85 | 5.49E-03 | 3.73E+04 | RO | |
| 78 | 300 | 4.63 | 6.79 | 134 | 136 | 9.74E-03 | 6.62E+04 | HA120-BOT | |
| 79 | 300 | 4.63 | 6.79 | 134 | 127 | 6.93E-02 | 4.71E+05 | " | |
| 80 | 300 | 4.63 | 6.79 | 126 | 116 | 2.64E-01 | 1.79E+06 | HA | |
| 81 | 300 | 4.63 | 6.79 | 119 | 105 | 3.09E-01 | 2.10E+06 | " | |
| 82 | 300 | 4.63 | 6.79 | 93 | 94 | 2.66E-03 | 1.81E+04 | " | |
| 83 | 300 | 4.63 | 6.79 | 90 | 108 | 8.63E-03 | 5.86E+04 | RO | |
| 84 | 300 | 4.63 | 6.79 | 93 | 106 | 2.78E-02 | 1.89E+05 | " | |
| 85 | 300 | 4.63 | 6.79 | 99 | 112 | 2.82E-02 | 1.91E+05 | " | |
| 86 | 300 | 4.63 | 6.79 | 90 | 107 | 6.01E-03 | 4.08E+04 | " | |
| 87 | 300 | 4.63 | 6.79 | 90 | 106 | 2.05E-03 | 1.39E+04 | " | |
| 88 | 300 | 4.63 | 6.79 | 90 | 105 | 2.94E-03 | 2.00E+04 | " | |

CONTINUE TRANSECT E11 NEW FILE. SHIP'S COURSE 270 DEG TRUE.
1317 - 1737 HRS. 5 SEPTEMBER 1983.

APPENDIX TABLE II/1 TRANSECT E11 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 89 | 300 | 4.63 | 6.79 | 90 | 105 | 1.61E-03 | 1.09E+04 | RO | |
| 90 | 300 | 4.63 | 6.79 | 91 | 110 | 4.60E-04 | 3.12E+03 | " | |
| 91 | 300 | 4.63 | 6.79 | 91 | 83 | 1.86E-04 | 1.26E+03 | " | |
| 92 | 300 | 4.63 | 6.79 | 92 | 109 | 3.77E-04 | 2.56E+03 | " | |
| 93 | 300 | 4.63 | 6.79 | 95 | 105 | 4.00E-03 | 2.72E+04 | " | |
| 94 | 300 | 4.63 | 6.79 | 99 | 116 | 9.16E-04 | 6.22E+03 | " | |
| 95 | 300 | 4.63 | 6.79 | 99 | 84 | 1.88E-04 | 1.28E+03 | " | |
| 96 | 300 | 4.63 | 6.79 | 100 | 119 | 1.23E-03 | 8.36E+03 | " | |
| 97 | 300 | 4.63 | 6.79 | 99 | 112 | 2.31E-03 | 1.57E+04 | " | |
| 98 | 300 | 4.63 | 6.79 | 100 | 114 | 9.36E-03 | 6.36E+04 | .9HA/.1RO | |
| 99 | 300 | 4.63 | 6.79 | 102 | 102 | 5.83E-02 | 3.96E+05 | " | |
| 100 | 300 | 4.63 | 6.79 | 101 | 105 | 5.69E-02 | 3.86E+05 | " | |
| 101 | 300 | 4.63 | 6.79 | 105 | 97 | 1.39E-01 | 9.42E+05 | " | |
| 102 | 300 | 4.63 | 6.79 | 108 | 106 | 2.37E-01 | 1.61E+06 | " | |
| 103 | 300 | 4.63 | 6.79 | 112 | 108 | 2.63E-01 | 1.79E+06 | " | 31 |
| 104 | 300 | 4.63 | 6.79 | 119 | 120 | 1.12E-01 | 7.63E+05 | " | |
| 105 | 300 | 4.63 | 6.79 | 135 | 132 | 1.91E-02 | 1.30E+05 | " | |
| 106 | 300 | 4.63 | 6.79 | 258 | 205 | 3.26E-02 | 2.21E+05 | HA | |
| 107 | 300 | 4.63 | 6.79 | 240 | 228 | 1.92E-02 | 1.30E+05 | " | |
| 108 | 300 | 4.63 | 6.79 | 168 | 175 | 5.38E-03 | 3.65E+04 | " | |
| 109 | 300 | 4.63 | 6.79 | 147 | 138 | 1.36E-03 | 9.22E+03 | RO | |
| 110 | 300 | 4.63 | 6.79 | 146 | 146 | 5.07E-03 | 3.44E+04 | " | |
| 111 | 300 | 4.63 | 6.79 | 146 | 134 | 2.57E-04 | 1.75E+03 | " | |
| 112 | 300 | 4.63 | 6.79 | 148 | 95 | 1.79E-04 | 1.22E+03 | " | |
| 113 | 300 | 4.63 | 6.79 | 163 | 150 | 9.05E-05 | 6.15E+02 | " | |
| 114 | 300 | 4.63 | 6.79 | 191 | 176 | 4.61E-04 | 3.13E+03 | " | |
| 115 | 129 | 4.63 | 2.92 | 211 | 213 | 5.69E-03 | 1.66E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E11 = 1.57E+07

APPENDIX TABLE II/1 TRANSECT E12 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1118 - 1403 HRS. 1 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 49 | 300 | 4.63 | 5.66 | 256 | 68 | 4.95E-01 | 2.80E+06 | HA | |
| DEPTH INTERVAL 40-300M, PLANKTON 5-40M | | | | | | | | | |
| 50 | 300 | 4.63 | 5.66 | 227 | 66 | 1.14E-01 | 6.44E+05 | " | |
| 51 | 300 | 4.63 | 5.66 | 202 | 68 | 3.19E-02 | 1.80E+05 | " | |
| 52 | 300 | 4.63 | 5.66 | 184 | 89 | 9.28E-03 | 5.25E+04 | " | |
| 53 | 300 | 4.63 | 5.66 | 199 | 76 | 1.17E-02 | 6.62E+04 | " | |
| DEPTH INTERVAL 20-300M | | | | | | | | | |
| 54 | 300 | 4.63 | 5.66 | 224 | 62 | 4.50E-02 | 2.54E+05 | " | 28 |
| 55 | 300 | 4.63 | 5.66 | 199 | 69 | 7.53E-02 | 4.26E+05 | " | " |
| 56 | 300 | 4.63 | 5.66 | 154 | 92 | 1.57E-02 | 8.89E+04 | " | |
| 57 | 300 | 4.63 | 5.66 | 108 | 104 | 5.48E-03 | 3.10E+04 | " | |
| 58 | 300 | 4.63 | 5.66 | 69 | 82 | 3.25E-03 | 1.84E+04 | " | |
| 59 | 300 | 4.63 | 5.66 | 65 | 80 | 1.14E-02 | 6.44E+04 | RO | |
| 60 | 300 | 4.63 | 5.66 | 82 | 83 | 3.81E-04 | 2.16E+03 | " | |
| 61 | 300 | 4.63 | 5.66 | 103 | 67 | 4.93E-04 | 2.79E+03 | " | |
| 62 | 300 | 4.63 | 5.66 | 120 | 76 | 5.62E-04 | 3.18E+03 | " | |
| 63 | 300 | 4.63 | 5.66 | 136 | 118 | 3.22E-03 | 1.82E+04 | HA | |
| 64 | 300 | 4.63 | 5.66 | 142 | 145 | 3.40E-03 | 1.92E+04 | " | |
| 65 | 300 | 4.63 | 5.66 | 142 | 153 | 2.44E-03 | 1.38E+04 | " | |
| 66 | 300 | 4.63 | 5.66 | 137 | 123 | 6.88E-03 | 3.89E+04 | " | |
| 67 | 300 | 4.63 | 5.66 | 122 | 123 | 1.48E-01 | 8.38E+05 | " | |
| 68 | 300 | 4.63 | 5.66 | 116 | 110 | 4.44E-02 | 2.51E+05 | " | |
| 69 | 300 | 4.63 | 5.66 | 116 | 114 | 9.68E-02 | 5.48E+05 | " | 6 |
| 70 | 300 | 4.63 | 5.66 | 117 | 111 | 1.01E-01 | 5.69E+05 | " | " |
| 71 | 300 | 4.63 | 5.66 | 118 | 109 | 9.91E-02 | 5.60E+05 | " | |
| 72 | 300 | 4.63 | 5.66 | 120 | 119 | 4.41E-02 | 2.49E+05 | " | |
| 73 | 300 | 4.63 | 5.66 | 122 | 109 | 1.15E-01 | 6.52E+05 | " | |
| 74 | 300 | 4.63 | 5.66 | 124 | 104 | 2.07E-01 | 1.17E+06 | " | |
| 75 | 300 | 4.63 | 5.66 | 125 | 107 | 1.05E-01 | 5.91E+05 | " | |
| 76 | 178 | 4.63 | 3.36 | 126 | 106 | 1.35E-01 | 4.52E+05 | " | 10 |
| CONTINUE TRANSECT E12 NEW FILE. SHIP'S COURSE 90 DEG TRUE. 1801 - 1843 HRS. 5 SEPTEMBER 1983. | | | | | | | | | |
| 120 | 300 | 4.63 | 8.00 | 270 | 262 | 1.63E-02 | 1.31E+05 | RO | |
| 121 | 300 | 4.63 | 8.00 | 210 | 199 | 2.34E-03 | 1.87E+04 | " | |
| 122 | 300 | 4.63 | 8.00 | 189 | 173 | 9.93E-04 | 7.94E+03 | " | |
| 123 | 300 | 4.63 | 8.00 | 172 | 163 | 6.65E-04 | 5.32E+03 | " | |

APPENDIX TABLE II/1 TRANSECT E12 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 124 | 300 | 4.63 | 8.00 | 153 | 129 | 2.54E-04 | 2.03E+03 | RO | |
| 125 | 300 | 4.63 | 8.00 | 142 | 131 | 6.10E-04 | 4.88E+03 | " | |
| 126 | 300 | 4.63 | 8.00 | 135 | 119 | 4.94E-04 | 3.95E+03 | " | |
| 127 | 23 | 4.63 | 0.61 | 131 | 149 | 1.01E-03 | 6.19E+02 | " | |

TOTAL BIOMASS FOR TRANSECT E12 = 1.08E+07

APPENDIX TABLE II/1 TRANSECT E13 (CONT'D)

DEPTH INTERVAL 20-300M SHIP'S COURSE 90 DEG TRUE.
1421 - 1650 HRS. 1 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 80 | 300 | 4.63 | 7.18 | 106 | 108 | 1.23E-01 | 8.82E+05 | HA | 2 |
| 81 | 300 | 4.63 | 7.18 | 107 | 108 | 1.07E-01 | 7.72E+05 | " | 7 |
| 82 | 300 | 4.63 | 7.18 | 108 | 91 | 4.62E-02 | 3.32E+05 | " | " |
| 83 | 300 | 4.63 | 7.18 | 106 | 101 | 4.13E-02 | 2.97E+05 | " | |
| 84 | 300 | 4.63 | 7.18 | 105 | 101 | 4.19E-02 | 3.01E+05 | " | |
| 85 | 300 | 4.63 | 7.18 | 101 | 101 | 9.11E-02 | 6.55E+05 | " | |
| 86 | 300 | 4.63 | 7.18 | 94 | 108 | 1.33E-01 | 9.55E+05 | " | |
| 87 | 300 | 4.63 | 7.18 | 94 | 109 | 7.54E-03 | 5.42E+04 | " | |
| 88 | 300 | 4.63 | 7.18 | 98 | 112 | 4.19E-02 | 3.01E+05 | " | |
| 89 | 300 | 4.63 | 7.18 | 103 | 106 | 6.78E-02 | 4.87E+05 | " | |
| 90 | 300 | 4.63 | 7.18 | 109 | 107 | 1.12E-01 | 8.02E+05 | " | |
| 91 | 300 | 4.63 | 7.18 | 115 | 107 | 4.32E-02 | 3.10E+05 | " | |
| 92 | 300 | 4.63 | 7.18 | 104 | 85 | 8.12E-04 | 5.83E+03 | " | |
| 93 | 300 | 4.63 | 7.18 | 80 | 69 | 6.24E-03 | 4.48E+04 | HE | |
| 94 | 300 | 4.63 | 7.18 | 58 | 70 | 4.48E-02 | 3.22E+05 | " | |
| 95 | 300 | 4.63 | 7.18 | 45 | 26 | 3.32E-03 | 2.38E+04 | .9DO/.1RO | |
| 96 | 300 | 4.63 | 7.18 | 37 | 38 | 6.91E-03 | 4.96E+04 | " | |
| 97 | 300 | 4.63 | 7.18 | 42 | 42 | 1.03E-02 | 7.43E+04 | " | |
| 98 | 300 | 4.63 | 7.18 | 44 | 43 | 2.00E-02 | 1.44E+05 | " | |
| 99 | 300 | 4.63 | 7.18 | 45 | 35 | 1.02E-02 | 7.34E+04 | " | |
| 100 | 300 | 4.63 | 7.18 | 44 | 42 | 1.62E-02 | 1.16E+05 | " | |
| 101 | 300 | 4.63 | 7.18 | 55 | 32 | 5.81E-02 | 4.17E+05 | HE | |
| 102 | 300 | 4.63 | 7.18 | 155 | 57 | 3.45E-01 | 2.48E+06 | HE30-70, HA70-BOT | 27 |
| DEPTH INTERVAL 40-300M, PLANKTON 0-40M | | | | | | | | | |
| 103 | 300 | 4.63 | 7.18 | 169 | 90 | 3.11E-02 | 2.23E+05 | HA | |
| 104 | 248 | 4.63 | 5.94 | 183 | 86 | 1.66E-02 | 9.84E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E13 = 1.02E+07

APPENDIX TABLE II/1 TRANSECT E14 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1706 - 1920 HRS. 1 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| DEPTH INTERVAL 40-300M PLANKTON 0-40M | | | | | | | | | |
| 108 | 300 | 4.63 | 7.71 | 72 | 63 | 1.19E-01 | 9.20E+05 | RO20-40,HA40-70 | |
| 109 | 300 | 4.63 | 7.71 | 45 | 75 | 5.75E-02 | 4.43E+05 | " " | |
| 110 | 300 | 4.63 | 7.71 | 27 | 66 | 7.76E-03 | 5.98E+04 | DO | |
| 111 | 300 | 4.63 | 7.71 | 17 | 55 | 4.13E-03 | 3.18E+04 | RO20-40,DO40-BOT | |
| 112 | 300 | 4.63 | 7.71 | 14 | 47 | 6.36E-04 | 4.90E+03 | " " | |
| 113 | 300 | 4.63 | 7.71 | 12 | 47 | 1.74E-03 | 1.34E+04 | " " | 12 |
| DEPTH INTERVAL 20-300M | | | | | | | | | |
| 114 | 300 | 4.63 | 7.71 | 24 | 29 | 7.24E-04 | 5.58E+03 | RO | |
| 115 | 300 | 4.63 | 7.71 | 23 | 34 | 6.33E-03 | 4.88E+04 | " | |
| 116 | 300 | 4.63 | 7.71 | 20 | 33 | 2.85E-04 | 2.20E+03 | " | |
| 117 | 300 | 4.63 | 7.71 | 20 | 30 | 2.25E-03 | 1.74E+04 | " | |
| 118 | 300 | 4.63 | 7.71 | 45 | 41 | 1.38E-03 | 1.07E+04 | " | |
| 119 | 300 | 4.63 | 7.71 | 68 | 72 | 8.60E-04 | 6.63E+03 | " | |
| 120 | 300 | 4.63 | 7.71 | 84 | 100 | 1.54E-03 | 1.19E+04 | " | |
| 121 | 300 | 4.63 | 7.71 | 69 | 71 | 4.83E-03 | 3.72E+04 | " | |
| 122 | 300 | 4.63 | 7.71 | 71 | 71 | 5.28E-04 | 4.07E+03 | " | |
| 123 | 300 | 4.63 | 7.71 | 72 | 87 | 5.50E-03 | 4.24E+04 | " | |
| 124 | 300 | 4.63 | 7.71 | 75 | 88 | 3.18E-03 | 2.45E+04 | " | |
| 125 | 300 | 4.63 | 7.71 | 85 | 94 | 5.98E-03 | 4.61E+04 | " | |
| 126 | 300 | 4.63 | 7.71 | 73 | 81 | 1.37E-03 | 1.06E+04 | " | |
| 127 | 300 | 4.63 | 7.71 | 77 | 73 | 1.62E-02 | 1.25E+05 | " | |
| 128 | 300 | 4.63 | 7.71 | 75 | 73 | 5.97E-02 | 4.60E+05 | " | 11 |
| 129 | 300 | 4.63 | 7.71 | 78 | 85 | 2.84E-02 | 2.19E+05 | " | |
| 130 | 109 | 4.63 | 2.80 | 82 | 82 | 1.99E-02 | 5.56E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E14 = 2.60E+06

APPENDIX TABLE II/1 TRANSECT E15 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 1938 - 2101 HRS. 1 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 134 | 300 | 4.63 | 8.12 | 99 | 101 | 4.57E-03 | 3.71E+04 | RO | 1 |
| 135 | 300 | 4.63 | 8.12 | 97 | 74 | 1.08E-02 | 8.75E+04 | " | " |
| 136 | 300 | 4.63 | 8.12 | 89 | 77 | 1.21E-02 | 9.79E+04 | " | " |
| 137 | 300 | 4.63 | 8.12 | 82 | 79 | 2.28E-02 | 1.85E+05 | " | |
| 138 | 300 | 4.63 | 8.12 | 88 | 89 | 2.09E-02 | 1.70E+05 | " | |
| 139 | 300 | 4.63 | 8.12 | 69 | 79 | 7.21E-03 | 5.85E+04 | " | |
| 140 | 300 | 4.63 | 8.12 | 67 | 56 | 1.06E-02 | 8.58E+04 | " | |
| 141 | 300 | 4.63 | 8.12 | 66 | 58 | 5.44E-03 | 4.42E+04 | " | |
| 142 | 300 | 4.63 | 8.12 | 72 | 57 | 2.88E-03 | 2.34E+04 | " | |
| 143 | 300 | 4.63 | 8.12 | 66 | 34 | 6.50E-03 | 5.28E+04 | " | |
| 144 | 300 | 4.63 | 8.12 | 69 | 30 | 1.06E-02 | 8.59E+04 | " | |
| 145 | 300 | 4.63 | 8.12 | 76 | 37 | 4.45E-03 | 3.61E+04 | " | |
| 146 | 300 | 4.63 | 8.12 | 66 | 60 | 2.15E-03 | 1.75E+04 | " | |
| 147 | 284 | 4.63 | 7.68 | 49 | 49 | 1.91E-03 | 1.47E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E15 = 9.96E+05

APPENDIX TABLE II/1 TRANSECT E16 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 0846 - 1028 HRS. 2 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 300 | 4.63 | 7.67 | 17 | 27 | 4.17E-03 | 3.20E+04 | HE | |
| 26 | 300 | 4.63 | 7.67 | 17 | 30 | 7.46E-04 | 5.72E+03 | " | |
| 27 | 300 | 4.63 | 7.67 | 15 | 27 | 3.09E-03 | 2.37E+04 | " | |
| 28 | 300 | 4.63 | 7.67 | 27 | 35 | 7.11E-03 | 5.45E+04 | " | |
| 29 | 300 | 4.63 | 7.67 | 40 | 52 | 6.88E-03 | 5.27E+04 | " | |
| 30 | 300 | 4.63 | 7.67 | 42 | 50 | 1.42E-03 | 1.09E+04 | " | |
| 31 | 300 | 4.63 | 7.67 | 50 | 46 | 3.53E-03 | 2.71E+04 | " | |
| 32 | 300 | 4.63 | 7.67 | 56 | 59 | 1.05E-03 | 8.05E+03 | " | |
| 33 | 300 | 4.63 | 7.67 | 61 | 77 | 3.58E-03 | 2.75E+04 | " | |
| 34 | 300 | 4.63 | 7.67 | 64 | 63 | 1.11E-03 | 8.50E+03 | " | |
| 35 | 300 | 4.63 | 7.67 | 66 | 76 | 6.98E-04 | 5.35E+03 | " | |
| 36 | 300 | 4.63 | 7.67 | 68 | 70 | 8.54E-04 | 6.55E+03 | " | |
| 37 | 300 | 4.63 | 7.67 | 71 | 87 | 1.59E-03 | 1.22E+04 | " | |
| 38 | 300 | 4.63 | 7.67 | 71 | 83 | 3.09E-03 | 2.37E+04 | " | |
| 39 | 300 | 4.63 | 7.67 | 72 | 80 | 3.19E-03 | 2.45E+04 | " | |
| 40 | 300 | 4.63 | 7.67 | 70 | 78 | 3.18E-03 | 2.44E+04 | RO | |
| 41 | 300 | 4.63 | 7.67 | 67 | 83 | 2.03E-03 | 1.55E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E16 = 3.63E+05

APPENDIX TABLE II/1 TRANSECT E17 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 0636 - 0755 HRS. 2 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 300 | 4.63 | 6.81 | 54 | 64 | 1.49E-03 | 1.01E+04 | HE | |
| 4 | 300 | 4.63 | 6.81 | 63 | 69 | 3.22E-03 | 2.19E+04 | " | |
| 5 | 300 | 4.63 | 6.81 | 63 | 64 | 1.91E-03 | 1.30E+04 | " | |
| 6 | 300 | 4.63 | 6.81 | 61 | 56 | 2.84E-03 | 1.93E+04 | " | |
| 7 | 300 | 4.63 | 6.81 | 58 | 70 | 5.91E-03 | 4.02E+04 | HE20-60,D060-BOT | |
| 8 | 300 | 4.63 | 6.81 | 55 | 66 | 8.44E-03 | 5.74E+04 | " | " |
| 9 | 300 | 4.63 | 6.81 | 44 | 32 | 3.72E-03 | 2.53E+04 | " | " |
| 10 | 300 | 4.63 | 6.81 | 39 | 30 | 4.92E-03 | 3.35E+04 | HE | |
| 11 | 300 | 4.63 | 6.81 | 26 | 38 | 1.39E-03 | 9.49E+03 | " | |
| 12 | 300 | 4.63 | 6.81 | 24 | 38 | 1.17E-03 | 7.93E+03 | " | |
| 13 | 300 | 4.63 | 6.81 | 22 | 32 | 9.84E-05 | 6.70E+02 | " | |
| 14 | 300 | 4.63 | 6.81 | 21 | 35 | 6.06E-04 | 4.12E+03 | " | |
| 15 | 255 | 4.63 | 5.79 | 18 | 27 | 1.18E-03 | 6.82E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E17 = 2.50E+05

APPENDIX TABLE II/1 TRANSECT E20 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 222 DEG TRUE. 1123 - 1235 HRS. 2 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 45 | 300 | 4.63 | 7.13 | 96 | 96 | 2.18E-02 | 1.55E+05 | RO | |
| 46 | 300 | 4.63 | 7.13 | 84 | 96 | 2.29E-03 | 1.63E+04 | " | |
| 47 | 300 | 4.63 | 7.13 | 123 | 131 | 8.55E-02 | 6.09E+05 | HA | 3&4 |
| 48 | 300 | 4.63 | 7.13 | 61 | 25 | 1.74E-06 | 1.24E+01 | " | " |
| 49 | 300 | 4.63 | 7.13 | 54 | 36 | 2.02E-05 | 1.44E+02 | NIL | |
| 50 | 300 | 4.63 | 7.13 | 55 | 41 | 6.19E-06 | 4.41E+01 | " | |
| 51 | 300 | 4.63 | 7.13 | 57 | 33 | 2.42E-05 | 1.73E+02 | " | |
| 52 | 300 | 4.63 | 7.13 | 60 | 67 | 2.34E-05 | 1.67E+02 | " | |
| 53 | 300 | 4.63 | 7.13 | 62 | 75 | 5.31E-05 | 3.78E+02 | " | |
| 54 | 300 | 4.63 | 7.13 | 64 | 81 | 6.25E-05 | 4.46E+02 | " | |
| 55 | 300 | 4.63 | 7.13 | 71 | 70 | 5.09E-03 | 3.62E+04 | RO | |
| 56 | 274 | 4.63 | 6.51 | 100 | 108 | 4.80E-03 | 3.12E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E20 = 8.49E+05

APPENDIX TABLE II/1 TRANSECT E21 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 042 DEG TRUE. 1259 - 1439 HRS. 2 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 61 | 110 | 4.63 | 2.77 | 60 | 35 | 1.03E-03 | 2.84E+03 | RO | |
| 62 | 300 | 4.63 | 7.55 | 59 | 57 | 7.38E-04 | 5.57E+03 | " | |
| 63 | 300 | 4.63 | 7.55 | 54 | 65 | 1.55E-03 | 1.17E+04 | " | |
| 64 | 300 | 4.63 | 7.55 | 58 | 75 | 2.84E-04 | 2.14E+03 | " | |
| 65 | 300 | 4.63 | 7.55 | 86 | 92 | 1.39E-02 | 1.05E+05 | HA | 32 |
| 66 | 300 | 4.63 | 7.55 | 86 | 100 | 6.41E-03 | 4.84E+04 | " | " |
| 67 | 300 | 4.63 | 7.55 | 93 | 99 | 2.82E-04 | 2.13E+03 | " | |
| 68 | 300 | 4.63 | 7.55 | 79 | 88 | 2.61E-03 | 1.97E+04 | " | |
| 69 | 300 | 4.63 | 7.55 | 88 | 104 | 2.98E-03 | 2.25E+04 | RO | |
| 70 | 300 | 4.63 | 7.55 | 72 | 87 | 1.99E-04 | 1.51E+03 | " | |
| 71 | 300 | 4.63 | 7.55 | 70 | 87 | 6.31E-05 | 4.76E+02 | " | |
| 72 | 300 | 4.63 | 7.55 | 94 | 109 | 7.30E-03 | 5.51E+04 | HA | |
| 73 | 300 | 4.63 | 7.55 | 102 | 104 | 6.38E-02 | 4.82E+05 | " | |
| 74 | 300 | 4.63 | 7.55 | 89 | 97 | 1.66E-01 | 1.26E+06 | " | |
| 75 | 300 | 4.63 | 7.55 | 78 | 85 | 3.60E-03 | 2.72E+04 | DO | |
| 76 | 300 | 4.63 | 7.55 | 70 | 83 | 8.02E-04 | 6.06E+03 | " | |
| 77 | 300 | 4.63 | 7.55 | 73 | 80 | 6.99E-04 | 5.28E+03 | RO | |
| 78 | 97 | 4.63 | 2.44 | 59 | 65 | 4.44E-03 | 1.08E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E21 = 2.06E+06

APPENDIX TABLE II/1 TRANSECT E22 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 222 DEG TRUE. 1503 - 1637 HRS. 2 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 84 | 300 | 4.63 | 7.48 | 24 | 35 | 1.10E-04 | 8.20E+02 | NIL | |
| 85 | 300 | 4.63 | 7.48 | 25 | 25 | 1.24E-04 | 9.27E+02 | " | |
| 86 | 300 | 4.63 | 7.48 | 24 | 26 | 9.56E-06 | 7.15E+01 | " | |
| 87 | 300 | 4.63 | 7.48 | 24 | 26 | 5.53E-05 | 4.14E+02 | " | |
| 88 | 300 | 4.63 | 7.48 | 31 | 25 | 6.43E-05 | 4.81E+02 | " | |
| 89 | 300 | 4.63 | 7.48 | 39 | 52 | 7.41E-05 | 5.54E+02 | " | |
| 90 | 300 | 4.63 | 7.48 | 47 | 53 | 4.82E-04 | 3.61E+03 | " | |
| 91 | 300 | 4.63 | 7.48 | 64 | 66 | 9.54E-04 | 7.14E+03 | " | |
| 92 | 300 | 4.63 | 7.48 | 94 | 96 | 5.28E-01 | 3.95E+06 | HA | |
| 93 | 300 | 4.63 | 7.48 | 101 | 113 | 1.45E-02 | 1.08E+05 | " | |
| 94 | 300 | 4.63 | 7.48 | 74 | 85 | 2.32E-02 | 1.73E+05 | RO | |
| 95 | 300 | 4.63 | 7.48 | 94 | 105 | 7.54E-03 | 5.64E+04 | " | |
| 96 | 300 | 4.63 | 7.48 | 79 | 94 | 5.51E-03 | 4.13E+04 | " | |
| 97 | 300 | 4.63 | 7.48 | 81 | 84 | 2.96E-03 | 2.22E+04 | " | |
| 98 | 209 | 4.63 | 5.21 | 70 | 78 | 2.90E-04 | 1.51E+03 | " | |
| CONTINUE TRANSECT E22, NEW FILE. SHIP'S COURSE 222 DEG TRUE. 1058 - 1141 HRS. 3 SEPTEMBER 1983. | | | | | | | | | |
| 25 | 300 | 4.63 | 7.41 | 55 | 55 | 1.07E-01 | 7.94E+05 | HE | |
| 26 | 300 | 4.63 | 7.41 | 45 | 53 | 2.46E-01 | 1.82E+06 | " | |
| 27 | 300 | 4.63 | 7.41 | 52 | 52 | 7.83E-02 | 5.80E+05 | " | |
| 28 | 300 | 4.63 | 7.41 | 75 | 91 | 4.81E-02 | 3.56E+05 | " | |
| 29 | 300 | 4.63 | 7.41 | 61 | 78 | 4.13E-04 | 3.06E+03 | " | |
| 30 | 300 | 4.63 | 7.41 | 60 | 77 | 4.80E-05 | 3.55E+02 | " | |
| 31 | 300 | 4.63 | 7.41 | 60 | 76 | 1.75E-03 | 1.30E+04 | " | |
| 32 | 87 | 4.63 | 2.15 | 63 | 70 | 1.62E-02 | 3.49E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E22 = 7.97E+06

APPENDIX TABLE II/1 TRANSECT E23 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 042 DEG TRUE. 1654 - 1830 HRS. 2 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 102 | 300 | 4.63 | 9.86 | 36 | 26 | 8.37E-05 | 8.25E+02 | NIL | |
| 103 | 300 | 4.63 | 9.86 | 66 | 80 | 2.41E-05 | 2.37E+02 | " | 33 |
| 104 | 300 | 4.63 | 9.86 | 78 | 93 | 9.89E-03 | 9.74E+04 | HA | " |
| 105 | 300 | 4.63 | 9.86 | 95 | 96 | 1.27E-01 | 1.25E+06 | " | |
| 106 | 300 | 4.63 | 9.86 | 102 | 107 | 7.08E-02 | 6.98E+05 | " | |
| 107 | 300 | 4.63 | 9.86 | 64 | 80 | 3.11E-03 | 3.06E+04 | " | |
| 108 | 300 | 4.63 | 9.86 | 39 | 45 | 4.87E-04 | 4.80E+03 | NIL | |
| 109 | 300 | 4.63 | 9.86 | 32 | 42 | 5.01E-05 | 4.94E+02 | " | |
| 110 | 300 | 4.63 | 9.86 | 27 | 25 | 3.07E-03 | 3.02E+04 | " | |
| 111 | 300 | 4.63 | 9.86 | 28 | 36 | 1.21E-05 | 1.19E+02 | " | |
| 112 | 300 | 4.63 | 9.86 | 24 | 33 | 7.27E-04 | 7.17E+03 | " | |
| 113 | 300 | 4.63 | 9.86 | 113 | 121 | 7.11E-03 | 7.00E+04 | RO | |
| 114 | 300 | 4.63 | 9.86 | 94 | 91 | 1.22E-03 | 1.20E+04 | HA | |
| 115 | 300 | 4.63 | 9.86 | 75 | 78 | 7.12E-03 | 7.02E+04 | RO | |
| 116 | 300 | 4.63 | 9.86 | 66 | 81 | 1.48E-02 | 1.46E+05 | " | |
| 117 | 300 | 4.63 | 9.86 | 69 | 76 | 5.14E-03 | 5.07E+04 | .4HE/.4EU/.2DO | |
| 118 | 300 | 4.63 | 9.86 | 63 | 70 | 1.94E-02 | 1.92E+05 | " | |
| 119 | 120 | 4.63 | 3.94 | 60 | 71 | 2.54E-02 | 1.00E+05 | " | |

CONTINUE TRANSECT E23, NEW FILE. SHIP'S COURSE 042 DEG TRUE.
1206 - 1308 HRS. 3 SEPTEMBER 1983.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 38 | 300 | 4.63 | 7.12 | 75 | 63 | 8.71E-03 | 6.20E+04 | RO | |
| 39 | 300 | 4.63 | 7.12 | 71 | 83 | 1.59E-03 | 1.13E+04 | " | |
| 40 | 300 | 4.63 | 7.12 | 64 | 74 | 1.35E-02 | 9.63E+04 | HE | |
| 41 | 300 | 4.63 | 7.12 | 60 | 72 | 1.69E-02 | 1.20E+05 | " | |
| 42 | 300 | 4.63 | 7.12 | 57 | 62 | 1.13E-02 | 8.03E+04 | " | |
| 43 | 300 | 4.63 | 7.12 | 51 | 39 | 5.39E-02 | 3.84E+05 | " | |
| 44 | 300 | 4.63 | 7.12 | 44 | 42 | 9.61E-02 | 6.84E+05 | " | |
| 45 | 300 | 4.63 | 7.12 | 41 | 48 | 7.73E-02 | 5.50E+05 | " | |
| 46 | 300 | 4.63 | 7.12 | 36 | 42 | 5.67E-01 | 4.04E+06 | " | |
| 47 | 300 | 4.63 | 7.12 | 29 | 30 | 5.87E-02 | 4.18E+05 | " | |
| 48 | 109 | 4.63 | 2.59 | 30 | 28 | 1.63E-05 | 4.21E+01 | " | |

TOTAL BIOMASS FOR TRANSECT E23 = 9.20E+06

APPENDIX TABLE II/1 TRANSECT E24 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 222 DEG TRUE. 0647 - 0820 HRS. 3 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 300 | 4.63 | 8.68 | 59 | 62 | 1.44E-02 | 1.25E+05 | .4HE/.4EU/.2DO | |
| 4 | 300 | 4.63 | 8.68 | 62 | 60 | 8.38E-03 | 7.28E+04 | " | |
| 5 | 300 | 4.63 | 8.68 | 67 | 65 | 6.19E-03 | 5.38E+04 | " | |
| 6 | 300 | 4.63 | 8.68 | 73 | 80 | 5.52E-03 | 4.80E+04 | " | |
| 7 | 300 | 4.63 | 8.68 | 80 | 82 | 4.86E-03 | 4.22E+04 | HA | |
| 8 | 300 | 4.63 | 8.68 | 86 | 86 | 4.49E-03 | 3.90E+04 | " | |
| 9 | 300 | 4.63 | 8.68 | 90 | 91 | 5.00E-02 | 4.34E+05 | " | |
| 10 | 300 | 4.63 | 8.68 | 92 | 80 | 8.93E-02 | 7.75E+05 | " | |
| 11 | 300 | 4.63 | 8.68 | 102 | 96 | 7.75E-02 | 6.72E+05 | " | |
| 12 | 300 | 4.63 | 8.68 | 129 | 118 | 8.86E-03 | 7.69E+04 | " | |
| 13 | 300 | 4.63 | 8.68 | 137 | 128 | 1.05E-02 | 9.08E+04 | " | |
| 14 | 300 | 4.63 | 8.68 | 87 | 95 | 6.16E-03 | 5.35E+04 | " | |
| 15 | 300 | 4.63 | 8.68 | 34 | 51 | 6.21E-02 | 5.39E+05 | HE | |
| 16 | 300 | 4.63 | 8.68 | 78 | 75 | 5.34E-03 | 4.64E+04 | PL | |
| 17 | 300 | 4.63 | 8.68 | 86 | 92 | 9.29E-03 | 8.07E+04 | " | |
| 18 | 123 | 4.63 | 3.56 | 87 | 97 | 2.26E-03 | 8.05E+03 | " | |
| CONTINUE TRANSECT E24. SHIP'S COURSE 222 DEG TRUE. 1328 - 1438 HRS. 3 SEPTEMBER 1983. | | | | | | | | | |
| 53 | 300 | 4.63 | 7.84 | 34 | 39 | 2.58E-02 | 2.02E+05 | HE | |
| 54 | 300 | 4.63 | 7.84 | 27 | 41 | 3.15E-02 | 2.47E+05 | " | |
| 55 | 300 | 4.63 | 7.84 | 32 | 34 | 2.67E-01 | 2.09E+06 | " | |
| 56 | 300 | 4.63 | 7.84 | 38 | 47 | 7.40E-02 | 5.80E+05 | " | 9 |
| 57 | 300 | 4.63 | 7.84 | 45 | 56 | 7.03E-03 | 5.51E+04 | " | |
| 58 | 300 | 4.63 | 7.84 | 51 | 69 | 1.04E-02 | 8.14E+04 | " | |
| 59 | 300 | 4.63 | 7.84 | 54 | 64 | 4.75E-02 | 3.73E+05 | " | |
| 60 | 300 | 4.63 | 7.84 | 56 | 62 | 7.69E-03 | 6.03E+04 | " | |
| 61 | 300 | 4.63 | 7.84 | 60 | 56 | 1.42E-02 | 1.11E+05 | RO | |
| 62 | 300 | 4.63 | 7.84 | 65 | 70 | 4.38E-03 | 3.43E+04 | " | |
| 63 | 300 | 4.63 | 7.84 | 72 | 71 | 6.91E-03 | 5.42E+04 | " | |
| 64 | 245 | 4.63 | 6.40 | 84 | 96 | 9.93E-04 | 6.36E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E24 = 7.06E+06

APPENDIX TABLE II/1 TRANSECT E25 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 042 DEG TRUE. 1502 - 1821 HRS. 3 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 69 | 300 | 4.63 | 7.46 | 104 | 86 | 6.99E-02 | 5.22E+05 | RO | |
| 70 | 300 | 4.63 | 7.46 | 96 | 100 | 6.49E-03 | 4.85E+04 | " | |
| 71 | 300 | 4.63 | 7.46 | 86 | 100 | 3.51E-03 | 2.62E+04 | " | |
| 72 | 300 | 4.63 | 7.46 | 75 | 91 | 7.22E-03 | 5.39E+04 | " | |
| 73 | 300 | 4.63 | 7.46 | 65 | 61 | 9.87E-04 | 7.37E+03 | " | |
| 74 | 300 | 4.63 | 7.46 | 57 | 75 | 2.89E-04 | 2.16E+03 | " | |
| 75 | 300 | 4.63 | 7.46 | 51 | 41 | 1.26E-03 | 9.40E+03 | HE | |
| 76 | 300 | 4.63 | 7.46 | 47 | 56 | 1.63E-02 | 1.22E+05 | " | |
| 77 | 300 | 4.63 | 7.46 | 45 | 53 | 1.09E-02 | 8.16E+04 | " | |
| 78 | 300 | 4.63 | 7.46 | 44 | 53 | 4.82E-03 | 3.59E+04 | " | |
| 79 | 300 | 4.63 | 7.46 | 41 | 51 | 9.06E-03 | 6.76E+04 | " | |
| 80 | 300 | 4.63 | 7.46 | 37 | 52 | 1.84E-02 | 1.37E+05 | " | |
| 81 | 300 | 4.63 | 7.46 | 30 | 36 | 9.18E-02 | 6.85E+05 | " | |
| 82 | 300 | 4.63 | 7.46 | 26 | 43 | 8.43E-03 | 6.29E+04 | " | |
| 83 | 300 | 4.63 | 7.46 | 22 | 37 | 2.07E-05 | 1.55E+02 | NIL | |
| 84 | 300 | 4.63 | 7.46 | 19 | 25 | 2.99E-06 | 2.23E+01 | " | |
| 85 | 300 | 4.63 | 7.46 | 19 | 25 | 5.45E-07 | 4.06E+00 | " | |
| 86 | 300 | 4.63 | 7.46 | 22 | 33 | 3.41E-06 | 2.55E+01 | " | |
| 87 | 300 | 4.63 | 7.46 | 29 | 43 | 7.25E-05 | 5.41E+02 | " | |
| 88 | 300 | 4.63 | 7.46 | 99 | 86 | 8.25E-02 | 6.16E+05 | HA | |
| 89 | 300 | 4.63 | 7.46 | 71 | 76 | 1.33E-02 | 9.96E+04 | PL | |
| 90 | 300 | 4.63 | 7.46 | 37 | 56 | 9.65E-04 | 7.20E+03 | " | |
| 91 | 300 | 4.63 | 7.46 | 42 | 60 | 1.17E-01 | 8.76E+05 | HE | |
| 92 | 300 | 4.63 | 7.46 | 86 | 87 | 7.56E-02 | 5.64E+05 | HA | |
| 93 | 300 | 4.63 | 7.46 | 97 | 98 | 5.08E-02 | 3.79E+05 | " | |
| 94 | 300 | 4.63 | 7.46 | 124 | 100 | 1.07E-01 | 7.98E+05 | " | |
| 95 | 300 | 4.63 | 7.46 | 112 | 110 | 2.18E-02 | 1.63E+05 | " | |
| 96 | 300 | 4.63 | 7.46 | 98 | 92 | 2.29E-02 | 1.71E+05 | " | |
| 97 | 300 | 4.63 | 7.46 | 87 | 91 | 3.48E-02 | 2.59E+05 | " | |
| 98 | 300 | 4.63 | 7.46 | 78 | 86 | 8.72E-02 | 6.51E+05 | " | |
| 99 | 300 | 4.63 | 7.46 | 71 | 76 | 5.04E-02 | 3.76E+05 | " | |
| 100 | 300 | 4.63 | 7.46 | 66 | 65 | 3.15E-02 | 2.35E+05 | " | |
| 101 | 300 | 4.63 | 7.46 | 63 | 65 | 2.87E-02 | 2.14E+05 | " | |
| 102 | 27 | 4.63 | 0.67 | 61 | 58 | 1.27E-02 | 8.52E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E25 = 7.28E+06

APPENDIX TABLE II/1 TRANSECT E26 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 222 DEG TRUE. 1838 - 2101 HRS. 3 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 106 | 300 | 4.63 | 7.79 | 58 | 66 | 3.87E-02 | 3.02E+05 | HA | |
| 107 | 300 | 4.63 | 7.79 | 68 | 71 | 4.00E-02 | 3.11E+05 | " | |
| 108 | 300 | 4.63 | 7.79 | 72 | 68 | 7.61E-02 | 5.93E+05 | " | |
| 109 | 300 | 4.63 | 7.79 | 68 | 81 | 1.04E-02 | 8.08E+04 | " | |
| 110 | 300 | 4.63 | 7.79 | 47 | 65 | 4.03E-03 | 3.14E+04 | " | |
| 111 | 300 | 4.63 | 7.79 | 30 | 49 | 2.42E-03 | 1.88E+04 | " | 36 |
| DEPTH INTERVAL 50-300M, PLANKTON 20-50M | | | | | | | | | |
| 112 | 300 | 4.63 | 7.79 | 70 | 104 | 1.71E-01 | 1.33E+06 | " | " |
| 113 | 300 | 4.63 | 7.79 | 97 | 136 | 9.83E-02 | 7.66E+05 | " | |
| 114 | 300 | 4.63 | 7.79 | 92 | 122 | 3.95E-02 | 3.07E+05 | " | |
| 115 | 300 | 4.63 | 7.79 | 97 | 130 | 8.10E-02 | 6.31E+05 | " | |
| 116 | 300 | 4.63 | 7.79 | 105 | 137 | 9.72E-02 | 7.57E+05 | " | |
| 117 | 300 | 4.63 | 7.79 | 107 | 141 | 1.01E-01 | 7.89E+05 | " | |
| 118 | 300 | 4.63 | 7.79 | 95 | 131 | 1.15E-01 | 8.94E+05 | " | |
| 119 | 300 | 4.63 | 7.79 | 85 | 128 | 5.50E-02 | 4.28E+05 | " | |
| DEPTH INTERVAL 20-300M | | | | | | | | | |
| 120 | 300 | 4.63 | 7.79 | 107 | 119 | 3.74E-02 | 2.91E+05 | " | |
| 121 | 300 | 4.63 | 7.79 | 60 | 65 | 4.94E-02 | 3.85E+05 | HE20-70,HA70-300 | |
| 122 | 300 | 4.63 | 7.79 | 26 | 42 | 8.15E-02 | 6.35E+05 | HE | |
| 123 | 300 | 4.63 | 7.79 | 25 | 39 | 2.59E-02 | 2.02E+05 | " | |
| 124 | 300 | 4.63 | 7.79 | 27 | 35 | 4.83E-02 | 3.76E+05 | " | |
| 125 | 300 | 4.63 | 7.79 | 29 | 38 | 2.05E-02 | 1.60E+05 | " | |
| 126 | 300 | 4.63 | 7.79 | 31 | 45 | 2.76E-05 | 2.15E+02 | " | |
| 127 | 300 | 4.63 | 7.79 | 34 | 44 | 4.94E-04 | 3.85E+03 | " | |
| 128 | 300 | 4.63 | 7.79 | 38 | 41 | 4.19E-04 | 3.27E+03 | " | |
| 129 | 300 | 4.63 | 7.79 | 40 | 54 | 9.42E-04 | 7.34E+03 | " | |
| CONTINUE TRANSECT E26 NEW FILE. SHIP'S COURSE 222 DEG TRUE. 0629 - 0729 HRS. 4 SEPTEMBER 1983. | | | | | | | | | |
| 2 | 300 | 4.63 | 7.66 | 39 | 58 | 3.47E-02 | 2.66E+05 | HE | |
| 3 | 300 | 4.63 | 7.66 | 45 | 62 | 2.99E-02 | 2.29E+05 | " | |
| 4 | 300 | 4.63 | 7.66 | 48 | 64 | 9.58E-03 | 7.33E+04 | HA | |
| 5 | 300 | 4.63 | 7.66 | 52 | 57 | 1.67E-03 | 1.28E+04 | " | |
| 6 | 300 | 4.63 | 7.66 | 64 | 60 | 3.32E-04 | 2.54E+03 | " | |
| 7 | 300 | 4.63 | 7.66 | 72 | 66 | 1.63E-04 | 1.24E+03 | " | |
| 8 | 300 | 4.63 | 7.66 | 82 | 83 | 8.26E-04 | 6.32E+03 | " | |
| 9 | 300 | 4.63 | 7.66 | 92 | 65 | 2.05E-03 | 1.57E+04 | " | |

APPENDIX TABLE II/1 TRANSECT E26 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 300 | 4.63 | 7.66 | 104 | 95 | 4.61E-02 | 3.53E+05 | HA | |
| 11 | 300 | 4.63 | 7.66 | 120 | 97 | 1.25E-01 | 9.56E+05 | " | |
| 12 | 24 | 4.63 | 0.61 | 129 | 112 | 2.84E-03 | 1.74E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E26 = 1.23E+07

APPENDIX TABLE II/1 TRANSECT E27 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 042 DEG TRUE. 0757 - 1043 HRS. 4 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 18 | 300 | 4.63 | 7.70 | 87 | 76 | 2.75E-03 | 2.12E+04 | RO | |
| 19 | 300 | 4.63 | 7.70 | 81 | 94 | 1.69E-03 | 1.30E+04 | HE | |
| 20 | 300 | 4.63 | 7.70 | 72 | 87 | 9.67E-04 | 7.45E+03 | " | |
| 21 | 300 | 4.63 | 7.70 | 63 | 70 | 1.84E-02 | 1.41E+05 | " | |
| 22 | 300 | 4.63 | 7.70 | 58 | 52 | 8.63E-04 | 6.65E+03 | " | |
| 23 | 300 | 4.63 | 7.70 | 57 | 67 | 7.55E-03 | 5.81E+04 | " | |
| 24 | 300 | 4.63 | 7.70 | 54 | 66 | 5.03E-03 | 3.87E+04 | " | |
| 25 | 300 | 4.63 | 7.70 | 49 | 58 | 2.39E-03 | 1.84E+04 | " | |
| 26 | 300 | 4.63 | 7.70 | 42 | 55 | 4.82E-03 | 3.71E+04 | " | |
| 27 | 300 | 4.63 | 7.70 | 38 | 49 | 2.40E-04 | 1.84E+03 | " | |
| 28 | 300 | 4.63 | 7.70 | 32 | 45 | 3.01E-04 | 2.32E+03 | " | |
| 29 | 300 | 4.63 | 7.70 | 31 | 49 | 1.17E-03 | 8.97E+03 | " | |
| 30 | 300 | 4.63 | 7.70 | 28 | 42 | 4.28E-04 | 3.29E+03 | " | |
| 31 | 300 | 4.63 | 7.70 | 29 | 49 | 1.28E-02 | 9.84E+04 | " | |
| 32 | 300 | 4.63 | 7.70 | 82 | 91 | 5.16E-03 | 3.98E+04 | HA | 34 |
| DEPTH INTERVAL 80-300M, PLANKTON 0-80M | | | | | | | | | |
| 33 | 300 | 4.63 | 7.70 | 44 | 116 | 7.94E-02 | 6.12E+05 | " | |
| 34 | 300 | 4.63 | 7.70 | 69 | 123 | 1.81E-01 | 1.39E+06 | " | |
| 35 | 300 | 4.63 | 7.70 | 105 | 165 | 2.06E-01 | 1.59E+06 | " | |
| 36 | 300 | 4.63 | 7.70 | 103 | 148 | 3.52E-01 | 2.71E+06 | " | |
| 37 | 300 | 4.63 | 7.70 | 77 | 110 | 2.22E-01 | 1.71E+06 | " | 35 |
| DEPTH INTERVAL 20-300M | | | | | | | | | |
| 38 | 300 | 4.63 | 7.70 | 85 | 88 | 1.79E-02 | 1.38E+05 | " | |
| 39 | 300 | 4.63 | 7.70 | 72 | 81 | 1.74E-03 | 1.34E+04 | HE | |
| 40 | 300 | 4.63 | 7.70 | 59 | 72 | 2.98E-02 | 2.30E+05 | " | |
| 41 | 300 | 4.63 | 7.70 | 41 | 58 | 3.32E-03 | 2.56E+04 | " | |
| 42 | 300 | 4.63 | 7.70 | 16 | 35 | 1.35E-03 | 1.04E+04 | " | |
| 43 | 300 | 4.63 | 7.70 | 16 | 26 | 2.38E-02 | 1.83E+05 | " | |
| 44 | 300 | 4.63 | 7.70 | 13 | 26 | 1.96E-03 | 1.51E+04 | " | |
| 45 | 184 | 4.63 | 4.72 | 11 | 27 | 3.88E-04 | 1.83E+03 | " | |

TOTAL BIOMASS FOR TRANSECT E27 = 9.13E+06

APPENDIX TABLE II/1 TRANSECT E28 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 042 DEG TRUE. 1107 - 1321 HRS. 4 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 50 | 300 | 4.63 | 7.56 | 16 | 32 | 1.79E-04 | 1.35E+03 | HE | |
| 51 | 300 | 4.63 | 7.56 | 18 | 31 | 4.29E-05 | 3.24E+02 | " | |
| 52 | 300 | 4.63 | 7.56 | 21 | 40 | 7.31E-05 | 5.52E+02 | " | |
| 53 | 300 | 4.63 | 7.56 | 31 | 38 | 2.20E-04 | 1.66E+03 | " | |
| 54 | 300 | 4.63 | 7.56 | 33 | 36 | 8.91E-01 | 6.74E+06 | " | |
| 55 | 300 | 4.63 | 7.56 | 37 | 41 | 5.18E-01 | 3.91E+06 | " | |
| 56 | 300 | 4.63 | 7.56 | 47 | 36 | 3.05E+00 | 2.31E+07 | " | |
| 57 | 300 | 4.63 | 7.56 | 61 | 46 | 1.72E-01 | 1.30E+06 | " | |
| 58 | 300 | 4.63 | 7.56 | 82 | 93 | 6.30E-03 | 4.76E+04 | UNIDENTIFIED | |
| 59 | 300 | 4.63 | 7.56 | 85 | 93 | 3.14E-02 | 2.37E+05 | " | |
| 60 | 300 | 4.63 | 7.56 | 44 | 62 | 3.13E-04 | 2.37E+03 | HE | |
| 61 | 300 | 4.63 | 7.56 | 32 | 43 | 1.31E-03 | 9.89E+03 | " | |
| 62 | 300 | 4.63 | 7.56 | 31 | 49 | 1.71E-03 | 1.29E+04 | " | |
| 63 | 300 | 4.63 | 7.56 | 36 | 53 | 7.58E-05 | 5.73E+02 | " | |
| 64 | 300 | 4.63 | 7.56 | 38 | 48 | 1.15E-03 | 8.68E+03 | " | |
| 65 | 300 | 4.63 | 7.56 | 42 | 56 | 6.38E-04 | 4.82E+03 | " | |
| 66 | 300 | 4.63 | 7.56 | 51 | 67 | 3.99E-04 | 3.02E+03 | " | |
| 67 | 300 | 4.63 | 7.56 | 57 | 73 | 2.21E-04 | 1.67E+03 | " | |
| 68 | 300 | 4.63 | 7.56 | 63 | 80 | 8.17E-05 | 6.17E+02 | " | |
| 69 | 300 | 4.63 | 7.56 | 67 | 64 | 9.58E-05 | 7.24E+02 | " | |
| 70 | 300 | 4.63 | 7.56 | 70 | 72 | 3.63E-04 | 2.75E+03 | " | |
| 71 | 300 | 4.63 | 7.56 | 75 | 91 | 3.53E-03 | 2.67E+04 | RO | |
| 72 | 138 | 4.63 | 3.48 | 74 | 76 | 2.05E-05 | 7.14E+01 | " | |

TOTAL BIOMASS FOR TRANSECT E28 = 3.54E+07

APPENDIX TABLE II/1 TRANSECT E29 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 042 DEG TRUE. 1349 - 1531 HRS. 4 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 78 | 300 | 4.63 | 7.47 | 70 | 87 | 5.74E-04 | 4.29E+03 | HE | |
| 79 | 300 | 4.63 | 7.47 | 65 | 80 | 2.99E-04 | 2.23E+03 | " | |
| 80 | 300 | 4.63 | 7.47 | 57 | 65 | 4.36E-05 | 3.26E+02 | " | |
| 81 | 300 | 4.63 | 7.47 | 48 | 51 | 1.31E-04 | 9.79E+02 | " | |
| 82 | 300 | 4.63 | 7.47 | 42 | 38 | 1.68E-04 | 1.26E+03 | " | |
| 83 | 300 | 4.63 | 7.47 | 37 | 51 | 4.39E-05 | 3.28E+02 | " | |
| 84 | 300 | 4.63 | 7.47 | 37 | 52 | 3.69E-03 | 2.76E+04 | " | |
| 85 | 300 | 4.63 | 7.47 | 38 | 57 | 3.43E-03 | 2.56E+04 | " | |
| 86 | 300 | 4.63 | 7.47 | 38 | 50 | 5.15E-02 | 3.85E+05 | " | |
| 87 | 300 | 4.63 | 7.47 | 37 | 37 | 2.78E-01 | 2.08E+06 | " | |
| 88 | 300 | 4.63 | 7.47 | 34 | 40 | 2.67E-01 | 1.99E+06 | " | |
| 89 | 300 | 4.63 | 7.47 | 28 | 40 | 2.19E-02 | 1.63E+05 | " | |
| 90 | 300 | 4.63 | 7.47 | 23 | 28 | 1.58E-03 | 1.18E+04 | " | |
| 91 | 300 | 4.63 | 7.47 | 20 | 39 | 4.25E-05 | 3.17E+02 | " | |
| 92 | 300 | 4.63 | 7.47 | 17 | 34 | 3.09E-03 | 2.31E+04 | " | |
| 93 | 300 | 4.63 | 7.47 | 16 | 33 | 1.45E-03 | 1.08E+04 | " | |
| 94 | 300 | 4.63 | 7.47 | 15 | 25 | 1.55E-02 | 1.16E+05 | " | |

TOTAL BIOMASS FOR TRANSECT E29 = 4.84E+06

APPENDIX TABLE II/1 TRANSECT E30 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 222 DEG TRUE. 1603 - 1710 HRS. 4 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 101 | 300 | 4.63 | 7.69 | 16 | 33 | 6.71E-02 | 5.16E+05 | HE | |
| 102 | 300 | 4.63 | 7.69 | 19 | 25 | 3.47E-03 | 2.67E+04 | " | |
| 103 | 300 | 4.63 | 7.69 | 22 | 26 | 2.62E-03 | 2.01E+04 | " | |
| AREA WIDTH INCREASED TO 5.0 NMI FOR OMITTED TRANSECT E31. | | | | | | | | | |
| 104 | 300 | 9.26 | 15.37 | 24 | 39 | 5.17E-03 | 7.95E+04 | " | |
| 105 | 300 | 9.26 | 15.37 | 29 | 35 | 6.50E-02 | 1.00E+06 | " | |
| 106 | 300 | 9.26 | 15.37 | 35 | 44 | 7.68E-02 | 1.18E+06 | " | |
| 107 | 300 | 9.26 | 15.37 | 40 | 51 | 5.35E-02 | 8.22E+05 | " | |
| 108 | 300 | 9.26 | 15.37 | 41 | 59 | 3.50E-04 | 5.38E+03 | " | |
| AREA WIDTH DECREASED TO 2.5 NMI | | | | | | | | | |
| 109 | 300 | 4.63 | 7.69 | 41 | 47 | 6.09E-04 | 4.68E+03 | " | |
| 110 | 300 | 4.63 | 7.69 | 41 | 60 | 8.39E-05 | 6.45E+02 | " | |
| 111 | 300 | 4.63 | 7.69 | 49 | 66 | 1.26E-05 | 9.69E+01 | " | |
| 112 | 47 | 4.63 | 1.20 | 55 | 62 | 5.11E-05 | 6.15E+01 | " | |

TOTAL BIOMASS FOR TRANSECT E30 = 3.65E+06

APPENDIX TABLE II/1 TRANSECT E32 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1902 - 1958 HRS. 5 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 132 | 300 | 4.63 | 7.32 | 106 | 118 | 8.52E-03 | 6.23E+04 | .9HA/.1RO | |
| 133 | 300 | 4.63 | 7.32 | 118 | 114 | 6.22E-03 | 4.55E+04 | " | |
| 134 | 300 | 4.63 | 7.32 | 126 | 107 | 2.49E-04 | 1.82E+03 | " | |
| 135 | 300 | 4.63 | 7.32 | 135 | 122 | 5.38E-04 | 3.93E+03 | " | |
| 136 | 300 | 4.63 | 7.32 | 146 | 143 | 6.19E-03 | 4.53E+04 | " | |
| 137 | 300 | 4.63 | 7.32 | 153 | 139 | 3.36E-03 | 2.46E+04 | " | |
| 138 | 300 | 4.63 | 7.32 | 162 | 133 | 2.07E-03 | 1.51E+04 | " | |
| 139 | 300 | 4.63 | 7.32 | 182 | 160 | 5.18E-04 | 3.79E+03 | UNIDENTIFIED | |
| 140 | 300 | 4.63 | 7.32 | 247 | 250 | 1.25E-02 | 9.15E+04 | " | |
| 141 | 112 | 4.63 | 2.73 | 280 | 265 | 1.00E-02 | 2.74E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E32 = 3.21E+05

APPENDIX TABLE II/1 TRANSECT E33 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 2018 - 2118 HRS. 5 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 146 | 300 | 4.63 | 8.06 | 280 | 105 | 5.37E-03 | 4.33E+04 | .9HA/.1RO | |
| 147 | 300 | 4.63 | 8.06 | 280 | 175 | 9.41E-03 | 7.58E+04 | " | |
| 148 | 300 | 4.63 | 8.06 | 261 | 207 | 1.64E-02 | 1.32E+05 | " | |
| 149 | 300 | 4.63 | 8.06 | 162 | 166 | 2.13E-03 | 1.71E+04 | " | |
| 150 | 300 | 4.63 | 8.06 | 149 | 149 | 3.72E-03 | 3.00E+04 | " | |
| 151 | 300 | 4.63 | 8.06 | 138 | 148 | 3.90E-03 | 3.14E+04 | " | |
| 152 | 300 | 4.63 | 8.06 | 126 | 121 | 5.23E-03 | 4.22E+04 | " | |
| 153 | 300 | 4.63 | 8.06 | 116 | 117 | 6.31E-03 | 5.09E+04 | " | |
| 154 | 300 | 4.63 | 8.06 | 106 | 90 | 7.25E-03 | 5.84E+04 | " | |
| 155 | 300 | 4.63 | 8.06 | 94 | 89 | 2.56E-03 | 2.06E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E33 = 5.02E+05

APPENDIX TABLE II/1 TRANSECT E34 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 0639 - 0807 HRS. 6 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 300 | 4.63 | 6.12 | 71 | 69 | 2.74E-03 | 1.68E+04 | .9HA/.1RO | |
| 3 | 300 | 4.63 | 6.12 | 77 | 89 | 6.35E-04 | 3.89E+03 | " | |
| 4 | 300 | 4.63 | 6.12 | 88 | 99 | 4.28E-03 | 2.62E+04 | " | |
| 5 | 300 | 4.63 | 6.12 | 101 | 91 | 2.77E-04 | 1.70E+03 | " | |
| 6 | 300 | 4.63 | 6.12 | 109 | 110 | 5.47E-04 | 3.35E+03 | " | |
| 7 | 300 | 4.63 | 6.12 | 117 | 121 | 5.48E-04 | 3.35E+03 | " | 37 |
| 8 | 300 | 4.63 | 6.12 | 118 | 119 | 5.57E-04 | 3.41E+03 | " | " |
| 9 | 300 | 4.63 | 6.12 | 128 | 116 | 1.85E-03 | 1.13E+04 | " | |
| 10 | 300 | 4.63 | 6.12 | 168 | 172 | 1.20E-02 | 7.37E+04 | " | |
| 11 | 300 | 4.63 | 6.12 | 280 | 158 | 1.06E-02 | 6.46E+04 | " | |
| 12 | 300 | 4.63 | 6.12 | 280 | 241 | 9.64E-03 | 5.90E+04 | .9HA/.1RO | |
| 13 | 300 | 4.63 | 6.12 | 280 | 243 | 7.98E-03 | 4.88E+04 | " | |
| 14 | 300 | 4.63 | 6.12 | 280 | 222 | 2.33E-03 | 1.43E+04 | " | |
| 15 | 300 | 4.63 | 6.12 | 280 | 261 | 3.64E-03 | 2.23E+04 | " | |
| 16 | 255 | 4.63 | 5.20 | 280 | 267 | 3.75E-03 | 1.95E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E34 = 3.72E+05

APPENDIX TABLE II/1 TRANSECT E35 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 0831 - 0955 HRS. 6 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 21 | 300 | 4.63 | 7.35 | 280 | 247 | 2.69E-03 | 1.98E+04 | .9HA/.1RO | |
| 22 | 300 | 4.63 | 7.35 | 280 | 248 | 2.17E-03 | 1.59E+04 | " | |
| 23 | 300 | 4.63 | 7.35 | 280 | 270 | 6.59E-03 | 4.84E+04 | " | |
| 24 | 300 | 4.63 | 7.35 | 280 | 229 | 9.53E-03 | 7.00E+04 | " | |
| 25 | 300 | 4.63 | 7.35 | 280 | 209 | 2.90E-02 | 2.13E+05 | " | |
| 26 | 300 | 4.63 | 7.35 | 217 | 172 | 1.25E-02 | 9.21E+04 | " | |
| 27 | 300 | 4.63 | 7.35 | 161 | 177 | 2.50E-03 | 1.84E+04 | " | |
| 28 | 300 | 4.63 | 7.35 | 133 | 138 | 6.07E-04 | 4.46E+03 | " | |
| 29 | 300 | 4.63 | 7.35 | 114 | 118 | 5.51E-04 | 4.05E+03 | " | |
| 30 | 300 | 4.63 | 7.35 | 104 | 94 | 2.03E-04 | 1.49E+03 | " | |
| 31 | 300 | 4.63 | 7.35 | 99 | 108 | 2.09E-03 | 1.54E+04 | " | |
| 32 | 300 | 4.63 | 7.35 | 89 | 85 | 3.12E-03 | 2.29E+04 | RO | |
| 33 | 300 | 4.63 | 7.35 | 82 | 89 | 1.21E-02 | 8.89E+04 | PL | |
| 34 | 300 | 4.63 | 7.35 | 77 | 93 | 1.15E-02 | 8.45E+04 | RO | |

TOTAL BIOMASS FOR TRANSECT E35 = 6.99E+05

APPENDIX TABLE II/1 TRANSECT E36 (CONT'D)

DEPTH INTERVAL 20-300 M
SHIP'S COURSE 90 DEG TRUE. 1945 - 2113 HRS. 4 SEPTEMBER 1983.

| PC # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 140 | 67 | 4.63 | 1.70 | 219 | 188 | 1.14E-03 | 1.93E+03 | HA | |
| 141 | 300 | 4.63 | 7.59 | 219 | 156 | 1.28E-03 | 9.70E+03 | " | |
| 142 | 300 | 4.63 | 7.59 | 219 | 189 | 1.25E-03 | 9.52E+03 | " | |
| 143 | 300 | 4.63 | 7.59 | 219 | 195 | 3.54E-03 | 2.69E+04 | " | |
| 144 | 300 | 4.63 | 7.59 | 196 | 183 | 4.95E-03 | 3.76E+04 | " | |
| 145 | 300 | 4.63 | 7.59 | 154 | 137 | 3.82E-03 | 2.90E+04 | " | |
| 146 | 300 | 4.63 | 7.59 | 142 | 129 | 1.04E-02 | 7.87E+04 | " | |
| 147 | 300 | 4.63 | 7.59 | 124 | 93 | 9.77E-03 | 7.42E+04 | " | |
| 148 | 300 | 4.63 | 7.59 | 116 | 88 | 1.98E-03 | 1.50E+04 | " | |
| 149 | 300 | 4.63 | 7.59 | 108 | 79 | 9.98E-04 | 7.57E+03 | " | |
| 150 | 300 | 4.63 | 7.59 | 100 | 79 | 1.03E-03 | 7.84E+03 | " | |
| 151 | 300 | 4.63 | 7.59 | 93 | 76 | 1.64E-03 | 1.24E+04 | " | |
| 152 | 300 | 4.63 | 7.59 | 86 | 64 | 3.38E-03 | 2.57E+04 | " | |
| 153 | 300 | 4.63 | 7.59 | 79 | 60 | 4.56E-03 | 3.46E+04 | " | |
| 154 | 300 | 4.63 | 7.59 | 74 | 52 | 5.10E-03 | 3.87E+04 | " | |
| 155 | 207 | 4.63 | 5.24 | 71 | 43 | 7.75E-03 | 4.06E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E36 = 4.50E+05

APPENDIX TABLE II/1 TRANSECT E37 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1717 - 1925 HRS. 4 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 115 | 300 | 4.63 | 5.86 | 60 | 75 | 1.12E-02 | 6.58E+04 | RO | |
| 116 | 300 | 4.63 | 5.86 | 65 | 81 | 1.17E-02 | 6.88E+04 | " | |
| 117 | 300 | 4.63 | 5.86 | 70 | 88 | 2.03E-02 | 1.19E+05 | " | |
| 118 | 300 | 4.63 | 5.86 | 74 | 83 | 3.13E-02 | 1.84E+05 | " | |
| 119 | 300 | 4.63 | 5.86 | 78 | 76 | 2.92E-02 | 1.71E+05 | " | |
| 120 | 300 | 4.63 | 5.86 | 82 | 83 | 3.38E-03 | 1.98E+04 | " | |
| 121 | 300 | 4.63 | 5.86 | 89 | 93 | 7.86E-03 | 4.61E+04 | " | |
| 122 | 300 | 4.63 | 5.86 | 93 | 93 | 1.00E-02 | 5.89E+04 | HA20-100,RO100-BOT | |
| 123 | 300 | 4.63 | 5.86 | 99 | 110 | 1.55E-02 | 9.10E+04 | " | |
| 124 | 300 | 4.63 | 5.86 | 103 | 108 | 1.44E-02 | 8.46E+04 | " | |
| 125 | 300 | 4.63 | 5.86 | 109 | 111 | 8.79E-02 | 5.15E+05 | " | |
| 126 | 300 | 4.63 | 5.86 | 114 | 119 | 1.84E-02 | 1.08E+05 | " | |
| 127 | 300 | 4.63 | 5.86 | 119 | 118 | 3.85E-02 | 2.26E+05 | " | |
| 128 | 300 | 4.63 | 5.86 | 130 | 115 | 6.31E-02 | 3.70E+05 | " | |
| 129 | 300 | 4.63 | 5.86 | 167 | 127 | 3.73E-02 | 2.19E+05 | " | |
| 130 | 300 | 4.63 | 5.86 | 219 | 132 | 4.12E-03 | 2.42E+04 | HA | |
| 131 | 300 | 4.63 | 5.86 | 219 | 96 | 3.69E-03 | 2.17E+04 | " | |
| 132 | 300 | 4.63 | 5.86 | 219 | 115 | 4.77E-03 | 2.80E+04 | " | |
| 133 | 300 | 4.63 | 5.86 | 219 | 128 | 5.78E-03 | 3.39E+04 | " | |
| 134 | 300 | 4.63 | 5.86 | 219 | 106 | 1.18E-02 | 6.89E+04 | " | |
| 135 | 300 | 4.63 | 5.86 | 219 | 133 | 4.89E-04 | 2.87E+03 | " | |
| 136 | 104 | 4.63 | 2.03 | 219 | 172 | 3.08E-04 | 6.26E+02 | " | |

TOTAL BIOMASS FOR TRANSECT E37 = 2.53E+06

APPENDIX TABLE II/1 TRANSECT E38 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1049 - 1240 HRS. 6 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 44 | 300 | 4.63 | 7.44 | 47 | 61 | 2.11E-03 | 1.57E+04 | RO | |
| 45 | 300 | 4.63 | 7.44 | 56 | 62 | 3.34E-03 | 2.49E+04 | " | |
| 46 | 300 | 4.63 | 7.44 | 63 | 72 | 6.47E-04 | 4.82E+03 | HA | |
| 47 | 300 | 4.63 | 7.44 | 69 | 71 | 3.28E-03 | 2.44E+04 | PL | |
| 48 | 300 | 4.63 | 7.44 | 76 | 69 | 3.19E-03 | 2.38E+04 | " | |
| 49 | 300 | 4.63 | 7.44 | 83 | 74 | 2.94E-03 | 2.19E+04 | " | |
| 50 | 300 | 4.63 | 7.44 | 90 | 84 | 7.55E-03 | 5.62E+04 | HA | |
| 51 | 300 | 4.63 | 7.44 | 100 | 79 | 1.22E-02 | 9.04E+04 | " | |
| 52 | 300 | 4.63 | 7.44 | 107 | 86 | 9.54E-03 | 7.10E+04 | " | |
| 53 | 300 | 4.63 | 7.44 | 115 | 102 | 9.84E-03 | 7.32E+04 | .9HA/.1RO | |
| 54 | 300 | 4.63 | 7.44 | 123 | 119 | 7.11E-03 | 5.29E+04 | " | |
| 55 | 300 | 4.63 | 7.44 | 139 | 103 | 1.70E-02 | 1.27E+05 | HA | |
| 56 | 300 | 4.63 | 7.44 | 146 | 108 | 4.21E-03 | 3.13E+04 | " | |
| 57 | 300 | 4.63 | 7.44 | 215 | 172 | 1.48E-02 | 1.10E+05 | " | |
| 58 | 300 | 4.63 | 7.44 | 280 | 221 | 1.95E-02 | 1.45E+05 | .9HA/.1RO | |
| 59 | 300 | 4.63 | 7.44 | 280 | 230 | 1.08E-02 | 8.01E+04 | " | |
| 60 | 300 | 4.63 | 7.44 | 280 | 195 | 5.68E-03 | 4.23E+04 | " | |
| 61 | 300 | 4.63 | 7.44 | 280 | 148 | 5.60E-03 | 4.17E+04 | " | |
| 62 | 166 | 4.63 | 4.12 | 280 | 258 | 5.32E-03 | 2.19E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E38 = 1.06E+06

APPENDIX TABLE II/1 TRANSECT E39 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 1300 - 1505 HRS. 6 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 300 | 4.63 | 7.14 | 227 | 218 | 1.03E-02 | 7.33E+04 | .9HA/.1RO | |
| 68 | 300 | 4.63 | 7.14 | 196 | 165 | 4.34E-03 | 3.10E+04 | " | |
| 69 | 300 | 4.63 | 7.14 | 186 | 167 | 4.09E-03 | 2.92E+04 | " | |
| 70 | 300 | 4.63 | 7.14 | 181 | 162 | 1.55E-03 | 1.11E+04 | " | |
| 71 | 300 | 4.63 | 7.14 | 155 | 118 | 2.22E-03 | 1.59E+04 | " | |
| 72 | 300 | 4.63 | 7.14 | 144 | 147 | 7.52E-03 | 5.37E+04 | " | |
| 73 | 300 | 4.63 | 7.14 | 139 | 126 | 1.09E-02 | 7.82E+04 | " | |
| 74 | 300 | 4.63 | 7.14 | 133 | 133 | 9.76E-03 | 6.97E+04 | " | |
| 75 | 300 | 4.63 | 7.14 | 126 | 82 | 1.07E-02 | 7.65E+04 | HA | |
| 76 | 300 | 4.63 | 7.14 | 119 | 85 | 7.38E-03 | 5.28E+04 | " | |
| 77 | 300 | 4.63 | 7.14 | 113 | 82 | 4.87E-02 | 3.48E+05 | " | |
| 78 | 300 | 4.63 | 7.14 | 105 | 72 | 1.09E-02 | 7.78E+04 | " | |
| 79 | 300 | 4.63 | 7.14 | 97 | 74 | 9.23E-03 | 6.59E+04 | " | |
| 80 | 300 | 4.63 | 7.14 | 90 | 71 | 8.89E-03 | 6.35E+04 | " | |
| 81 | 300 | 4.63 | 7.14 | 82 | 72 | 1.25E-02 | 8.95E+04 | " | |
| 82 | 300 | 4.63 | 7.14 | 74 | 71 | 1.15E-02 | 8.25E+04 | " | |
| 83 | 300 | 4.63 | 7.14 | 68 | 75 | 9.73E-03 | 6.95E+04 | .9HA/.1RO | |
| 84 | 300 | 4.63 | 7.14 | 62 | 68 | 4.94E-03 | 3.53E+04 | PL | |
| 85 | 300 | 4.63 | 7.14 | 56 | 64 | 1.67E-03 | 1.19E+04 | RO | |
| 86 | 300 | 4.63 | 7.14 | 48 | 58 | 2.46E-03 | 1.75E+04 | " | |
| 87 | 265 | 4.63 | 6.31 | 43 | 53 | 3.41E-03 | 2.15E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E39 = 1.37E+06

APPENDIX TABLE II/1 TRANSECT E40 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1531 - 1753 HkS. 6 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 92 | 300 | 4.63 | 6.54 | 36 | 53 | 4.80E-03 | 3.14E+04 | RO | |
| 93 | 300 | 4.63 | 6.54 | 42 | 55 | 2.01E-03 | 1.32E+04 | " | |
| 94 | 300 | 4.63 | 6.54 | 43 | 58 | 3.18E-03 | 2.08E+04 | " | |
| 95 | 300 | 4.63 | 6.54 | 48 | 55 | 2.86E-03 | 1.87E+04 | " | |
| 96 | 300 | 4.63 | 6.54 | 52 | 60 | 1.02E-02 | 6.65E+04 | PL | |
| 97 | 300 | 4.63 | 6.54 | 58 | 59 | 2.84E-02 | 1.86E+05 | .9HA/.1RO60-BOT | |
| 98 | 300 | 4.63 | 6.54 | 65 | 62 | 5.05E-02 | 3.30E+05 | .9HA/.1RO50-BOT | |
| 99 | 300 | 4.63 | 6.54 | 73 | 66 | 5.81E-02 | 3.80E+05 | " | |
| 100 | 300 | 4.63 | 6.54 | 80 | 67 | 4.91E-02 | 3.21E+05 | " | |
| 101 | 300 | 4.63 | 6.54 | 87 | 59 | 3.97E-02 | 2.60E+05 | .9HA/.1RO | |
| 102 | 300 | 4.63 | 6.54 | 93 | 51 | 1.23E-02 | 8.08E+04 | " | |
| 103 | 300 | 4.63 | 6.54 | 99 | 58 | 2.21E-02 | 1.44E+05 | " | |
| 104 | 300 | 4.63 | 6.54 | 106 | 59 | 6.94E-02 | 4.54E+05 | " | |
| 105 | 300 | 4.63 | 6.54 | 111 | 51 | 4.58E-02 | 3.00E+05 | " | |
| 106 | 300 | 4.63 | 6.54 | 116 | 45 | 5.28E-02 | 3.45E+05 | " | |
| 107 | 300 | 4.63 | 6.54 | 123 | 59 | 3.00E-02 | 1.96E+05 | " | |
| 108 | 300 | 4.63 | 6.54 | 130 | 69 | 1.36E-02 | 8.88E+04 | " | |
| 109 | 300 | 4.63 | 6.54 | 134 | 80 | 2.72E-03 | 1.78E+04 | " | |
| 110 | 300 | 4.63 | 6.54 | 136 | 100 | 7.28E-03 | 4.76E+04 | " | |
| 111 | 300 | 4.63 | 6.54 | 137 | 90 | 1.05E-02 | 6.86E+04 | .9HA/.1RO20-130 | |
| 112 | 300 | 4.63 | 6.54 | 137 | 120 | 1.04E-02 | 6.78E+04 | " ,PL130-BOT | |
| 113 | 300 | 4.63 | 6.54 | 139 | 137 | 7.82E-03 | 5.11E+04 | " | |
| 114 | 300 | 4.63 | 6.54 | 148 | 142 | 1.48E-02 | 9.68E+04 | " | |
| 115 | 300 | 4.63 | 6.54 | 155 | 154 | 1.48E-02 | 9.66E+04 | " | |
| 116 | 153 | 4.63 | 3.34 | 160 | 156 | 1.71E-02 | 5.69E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E40 = 3.74E+06

APPENDIX TABLE II/1 TRANSECT E41 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 1811 - 2217 HRS. 6 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 120 | 300 | 4.63 | 8.08 | 140 | 60 | 9.45E-02 | 7.64E+05 | .9HA/.1RO | |
| 121 | 300 | 4.63 | 8.08 | 135 | 75 | 2.24E-02 | 1.81E+05 | " | |
| 122 | 300 | 4.63 | 8.08 | 132 | 66 | 1.52E-02 | 1.23E+05 | " | |
| 123 | 300 | 4.63 | 8.08 | 133 | 62 | 2.03E-02 | 1.64E+05 | " | |
| 124 | 300 | 4.63 | 8.08 | 130 | 66 | 2.77E-02 | 2.24E+05 | " | |
| 125 | 300 | 4.63 | 8.08 | 129 | 56 | 3.51E-02 | 2.83E+05 | " | |
| 126 | 300 | 4.63 | 8.08 | 126 | 52 | 5.23E-02 | 4.23E+05 | " | |
| 127 | 300 | 4.63 | 8.08 | 121 | 65 | 2.25E-02 | 1.82E+05 | " | |
| 128 | 300 | 4.63 | 8.08 | 114 | 75 | 1.16E-02 | 9.34E+04 | " | |
| 129 | 300 | 4.63 | 8.08 | 107 | 64 | 6.35E-03 | 5.13E+04 | " | |
| 130 | 300 | 4.63 | 8.08 | 101 | 77 | 1.06E-02 | 8.56E+04 | " | |
| 131 | 300 | 4.63 | 8.08 | 95 | 76 | 8.25E-03 | 6.67E+04 | " | |
| 132 | 300 | 4.63 | 8.08 | 90 | 71 | 9.28E-03 | 7.50E+04 | .4HE/.4EU/.2RO | |
| 133 | 300 | 4.63 | 8.08 | 83 | 63 | 1.08E-02 | 8.74E+04 | " | |
| 134 | 300 | 4.63 | 8.08 | 76 | 69 | 9.04E-03 | 7.30E+04 | " | |
| 135 | 300 | 4.63 | 8.08 | 69 | 56 | 1.12E-02 | 9.02E+04 | " | |
| 136 | 300 | 4.63 | 8.08 | 62 | 50 | 1.82E-02 | 1.47E+05 | " | |
| 137 | 300 | 4.63 | 8.08 | 56 | 49 | 2.39E-02 | 1.93E+05 | " | |
| 138 | 300 | 4.63 | 8.08 | 50 | 54 | 1.32E-02 | 1.07E+05 | " | |
| 139 | 300 | 4.63 | 8.08 | 46 | 50 | 1.98E-02 | 1.60E+05 | " | |
| 140 | 300 | 4.63 | 8.08 | 41 | 45 | 1.65E-02 | 1.33E+05 | " | |
| 141 | 300 | 4.63 | 8.08 | 36 | 42 | 1.46E-02 | 1.18E+05 | " | |
| 142 | 300 | 4.63 | 8.08 | 36 | 41 | 4.28E-02 | 3.45E+05 | " | |
| 143 | 300 | 4.63 | 8.08 | 32 | 39 | 2.67E-02 | 2.16E+05 | " | |
| 144 | 300 | 4.63 | 8.08 | 30 | 37 | 5.71E-03 | 4.61E+04 | " | |
| 145 | 300 | 4.63 | 8.08 | 22 | 30 | 1.95E-03 | 1.58E+04 | " | |
| 146 | 300 | 4.63 | 8.08 | 18 | 32 | 8.30E-04 | 6.70E+03 | " | |
| 147 | 300 | 4.63 | 8.08 | 15 | 29 | 8.55E-04 | 6.91E+03 | " | |
| 148 | 300 | 4.63 | 8.08 | 15 | 31 | 4.50E-03 | 3.64E+04 | " | |
| 149 | 300 | 4.63 | 8.08 | 17 | 28 | 1.65E-03 | 1.33E+04 | " | |
| 150 | 300 | 4.63 | 8.08 | 19 | 35 | 1.97E-03 | 1.59E+04 | " | |
| 151 | 300 | 4.63 | 8.08 | 56 | 58 | 2.01E-02 | 1.62E+05 | " | |
| 152 | 300 | 4.63 | 8.08 | 40 | 50 | 6.80E-03 | 5.49E+04 | " | |
| 153 | 300 | 4.63 | 8.08 | 11 | 26 | 1.21E-03 | 9.77E+03 | " | |
| 154 | 300 | 4.63 | 8.08 | 8 | 25 | 7.48E-04 | 6.05E+03 | " | |
| 155 | 300 | 4.63 | 8.08 | 8 | 24 | 1.45E-03 | 1.17E+04 | " | |
| 156 | 300 | 4.63 | 8.08 | 8 | 24 | 1.30E-04 | 1.05E+03 | " | |
| 157 | 300 | 4.63 | 8.08 | 8 | 26 | 3.75E-04 | 3.03E+03 | " | |
| 158 | 300 | 4.63 | 8.08 | 10 | 25 | 7.98E-04 | 6.45E+03 | " | |
| 159 | 300 | 4.63 | 8.08 | 14 | 34 | 2.78E-02 | 2.25E+05 | " | |
| 160 | 224 | 4.63 | 6.03 | 45 | 53 | 1.70E-01 | 1.03E+06 | PL | |

TOTAL BIOMASS FOR TRANSECT E41 = 6.03E+06
THIS TRANSECT DONE AFTER DARK, FISH DISTRIBUTED THROUGHOUT WATER COLUMN

APPENDIX TABLE II/1 TRANSECT E42 (CONT'D)

DEPTH INTERVAL 20-140M,
SHIP'S COURSE 90 DEG TRUE. 0634 - 1054 HRS. 7 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 300 | 4.63 | 7.27 | 120 | 80 | 8.17E-03 | 5.94E+04 | HA | |
| 5 | 300 | 4.63 | 7.27 | 120 | 80 | 8.17E-03 | 5.94E+04 | " | |
| 6 | 300 | 4.63 | 7.27 | 120 | 80 | 8.17E-03 | 5.94E+04 | " | |
| 7 | 300 | 4.63 | 7.27 | 120 | 80 | 8.17E-03 | 5.94E+04 | " | |
| 8 | 300 | 4.63 | 7.27 | 120 | 80 | 8.17E-03 | 5.94E+04 | " | |
| REPLACE PO# 4-8 WITH AVERAGE VALUE FROM PO# 9-10<br>ECHO SOUNDER TRANSMITTER SWITCH INADVERTENTLY LEFT IN OFF POSITION FOR PO# 4-8. | | | | | | | | | |
| 9 | 300 | 4.63 | 7.27 | 120 | 89 | 1.11E-02 | 8.08E+04 | " | |
| DEPTH INTERVAL 20-130M | | | | | | | | | |
| 10 | 300 | 4.63 | 7.27 | 110 | 86 | 2.84E-02 | 2.07E+05 | " | |
| DEPTH INTERVAL 20-300M | | | | | | | | | |
| 11 | 300 | 4.63 | 7.27 | 114 | 96 | 5.29E-03 | 3.85E+04 | " | |
| 12 | 300 | 4.63 | 7.27 | 111 | 104 | 1.12E-02 | 8.11E+04 | HA20-100,PL100-BOT | |
| 13 | 300 | 4.63 | 7.27 | 107 | 105 | 1.19E-02 | 8.65E+04 | HA20-90,PL90-BOT | |
| 14 | 300 | 4.63 | 7.27 | 102 | 104 | 1.28E-02 | 9.32E+04 | HA20-80,PL80-BOT | |
| 15 | 300 | 4.63 | 7.27 | 98 | 97 | 2.00E-02 | 1.46E+05 | HA20-80,PL80-BOT | |
| 16 | 300 | 4.63 | 7.27 | 92 | 97 | 1.64E-02 | 1.19E+05 | " | |
| 17 | 300 | 4.63 | 7.27 | 86 | 90 | 1.98E-02 | 1.44E+05 | " | |
| 18 | 300 | 4.63 | 7.27 | 81 | 89 | 1.71E-02 | 1.24E+05 | " | |
| 19 | 300 | 4.63 | 7.27 | 76 | 85 | 1.32E-02 | 9.58E+04 | " | |
| 20 | 300 | 4.63 | 7.27 | 71 | 82 | 6.97E-03 | 5.06E+04 | " | |
| 21 | 300 | 4.63 | 7.27 | 65 | 78 | 3.41E-03 | 2.48E+04 | PL | |
| 22 | 300 | 4.63 | 7.27 | 59 | 74 | 4.24E-03 | 3.08E+04 | " | |
| 23 | 300 | 4.63 | 7.27 | 52 | 71 | 2.45E-03 | 1.78E+04 | " | |
| 24 | 300 | 4.63 | 7.27 | 46 | 55 | 1.13E-03 | 8.25E+03 | HE | |
| 25 | 300 | 4.63 | 7.27 | 43 | 57 | 6.39E-04 | 4.64E+03 | " | |
| 26 | 300 | 4.63 | 7.27 | 38 | 57 | 1.55E-04 | 1.13E+03 | " | |
| 27 | 300 | 4.63 | 7.27 | 34 | 46 | 3.84E-04 | 2.79E+03 | " | |
| 28 | 300 | 4.63 | 7.27 | 33 | 50 | 7.96E-03 | 5.79E+04 | " | |
| 29 | 300 | 4.63 | 7.27 | 26 | 41 | 1.01E-02 | 7.38E+04 | " | |
| 30 | 300 | 4.63 | 7.27 | 22 | 38 | 7.27E-02 | 5.28E+05 | " | |
| 31 | 300 | 4.63 | 7.27 | 18 | 34 | 8.42E-03 | 6.12E+04 | " | |
| 32 | 300 | 4.63 | 7.27 | 15 | 33 | 1.82E-02 | 1.33E+05 | " | |
| 33 | 300 | 4.63 | 7.27 | 15 | 32 | 7.93E-05 | 5.76E+02 | " | |
| 34 | 300 | 4.63 | 7.27 | 13 | 31 | 8.34E-03 | 6.06E+04 | " | |

APPENDIX TABLE II/1 TRANSECT E42 (CONT'D)

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 300 | 4.63 | 7.27 | 9 | 25 | 1.75E-03 | 1.27E+04 | HE | |
| 36 | 300 | 4.63 | 7.27 | 9 | 24 | 4.96E-05 | 3.61E+02 | " | |
| 37 | 300 | 4.63 | 7.27 | 7 | 24 | 4.23E-04 | 3.07E+03 | " | |
| 38 | 300 | 4.63 | 7.27 | 8 | 27 | 2.96E-04 | 2.15E+03 | " | |
| 39 | 300 | 4.63 | 7.27 | 40 | 48 | 9.66E-02 | 7.03E+05 | HA | |
| 40 | 300 | 4.63 | 7.27 | 62 | 58 | 3.28E-02 | 2.39E+05 | " | |
| 41 | 300 | 4.63 | 7.27 | 64 | 51 | 4.81E-02 | 3.49E+05 | " | |
| 42 | 300 | 4.63 | 7.27 | 65 | 70 | 2.54E-02 | 1.85E+05 | " | |
| 43 | 300 | 4.63 | 7.27 | 63 | 67 | 2.83E-02 | 2.06E+05 | " | |
| 44 | 300 | 4.63 | 7.27 | 61 | 68 | 4.23E-02 | 3.08E+05 | " | |
| 45 | 300 | 4.63 | 7.27 | 60 | 64 | 5.34E-02 | 3.88E+05 | " | |
| 46 | 300 | 4.63 | 7.27 | 60 | 61 | 4.93E-02 | 3.58E+05 | " | |
| 47 | 122 | 4.63 | 2.96 | 60 | 63 | 4.30E-02 | 1.27E+05 | " | |

TOTAL BIOMASS FOR TRANSECT E42 = 5.45E+06

APPENDIX TABLE II/1 TRANSECT E43 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 270 DEG TRUE. 1112 - 1502 HRS. 7 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 51 | 300 | 4.63 | 8.03 | 46 | 62 | 1.72E-02 | 1.38E+05 | HE | |
| 52 | 300 | 4.63 | 8.03 | 48 | 62 | 8.27E-03 | 6.64E+04 | " | |
| 53 | 300 | 4.63 | 8.03 | 42 | 60 | 1.19E-02 | 9.52E+04 | " | |
| 54 | 300 | 4.63 | 8.03 | 18 | 33 | 3.69E-03 | 2.96E+04 | " | |
| 55 | 300 | 4.63 | 8.03 | 10 | 25 | 9.42E-04 | 7.57E+03 | " | |
| 56 | 300 | 4.63 | 8.03 | 9 | 24 | 1.40E-03 | 1.12E+04 | " | |
| 57 | 300 | 4.63 | 8.03 | 6 | 23 | 4.33E-04 | 3.47E+03 | " | |
| 58 | 300 | 4.63 | 8.03 | 5 | 23 | 4.69E-06 | 3.76E+01 | " | |
| 59 | 300 | 4.63 | 8.03 | 10 | 27 | 2.11E-05 | 1.70E+02 | " | |
| 60 | 300 | 4.63 | 8.03 | 15 | 32 | 2.52E-04 | 2.02E+03 | " | |
| 61 | 300 | 4.63 | 8.03 | 18 | 34 | 1.33E-02 | 1.07E+05 | " | |
| 62 | 300 | 4.63 | 8.03 | 17 | 33 | 7.74E-05 | 6.21E+02 | " | |
| 63 | 300 | 4.63 | 8.03 | 15 | 25 | 3.16E-04 | 2.54E+03 | " | |
| 64 | 300 | 4.63 | 8.03 | 19 | 34 | 1.92E-02 | 1.54E+05 | " | |
| 65 | 300 | 4.63 | 8.03 | 21 | 35 | 8.97E-03 | 7.20E+04 | " | |
| 66 | 300 | 4.63 | 8.03 | 24 | 40 | 5.06E-03 | 4.07E+04 | " | |
| 67 | 300 | 4.63 | 8.03 | 27 | 33 | 2.96E-05 | 2.38E+02 | " | |
| 68 | 300 | 4.63 | 8.03 | 34 | 51 | 5.31E-03 | 4.26E+04 | " | |
| 69 | 300 | 4.63 | 8.03 | 40 | 53 | 2.97E-02 | 2.38E+05 | " | |
| 70 | 300 | 4.63 | 8.03 | 45 | 57 | 2.50E-03 | 2.00E+04 | " | |
| 71 | 300 | 4.63 | 8.03 | 51 | 65 | 9.46E-03 | 7.60E+04 | " | |
| 72 | 300 | 4.63 | 8.03 | 59 | 75 | 1.25E-02 | 1.00E+05 | " | |
| 73 | 300 | 4.63 | 8.03 | 68 | 74 | 7.03E-03 | 5.64E+04 | " | 40 |
| 74 | 300 | 4.63 | 8.03 | 75 | 87 | 4.02E-03 | 3.23E+04 | " | " |
| 75 | 300 | 4.63 | 8.03 | 80 | 98 | 2.88E-03 | 2.31E+04 | PL | |
| 76 | 300 | 4.63 | 8.03 | 85 | 100 | 1.28E-02 | 1.02E+05 | " | |
| 77 | 300 | 4.63 | 8.03 | 90 | 107 | 1.10E-02 | 8.80E+04 | " | |
| 78 | 300 | 4.63 | 8.03 | 95 | 111 | 6.91E-03 | 5.55E+04 | .4HE/.4EU/.2DO | |
| 79 | 300 | 4.63 | 8.03 | 101 | 118 | 2.61E-02 | 2.10E+05 | " | |
| 80 | 300 | 4.63 | 8.03 | 106 | 122 | 1.08E-02 | 8.68E+04 | " | |
| 81 | 300 | 4.63 | 8.03 | 110 | 123 | 6.39E-03 | 5.13E+04 | " | |
| 82 | 300 | 4.63 | 8.03 | 115 | 116 | 4.03E-03 | 3.24E+04 | " | |
| 83 | 300 | 4.63 | 8.03 | 118 | 111 | 1.04E-03 | 8.37E+03 | " | |
| 84 | 300 | 4.63 | 8.03 | 122 | 106 | 9.09E-04 | 7.30E+03 | " | |
| 85 | 300 | 4.63 | 8.03 | 125 | 116 | 2.02E-03 | 1.62E+04 | HA | |
| 86 | 300 | 4.63 | 8.03 | 129 | 95 | 6.79E-03 | 5.45E+04 | " | |
| 87 | 300 | 4.63 | 8.03 | 138 | 84 | 1.82E-01 | 1.46E+06 | " | |
| 88 | 300 | 4.63 | 8.03 | 273 | 91 | 6.45E-02 | 5.18E+05 | " | |
| 89 | 137 | 4.63 | 3.67 | 280 | 164 | 3.73E-03 | 1.37E+04 | " | |

TOTAL BIOMASS FOR TRANSECT E43 = 4.02E+06

APPENDIX TABLE II/1 TRANSECT E44 (CONT'D)

DEPTH INTERVAL 20-300M,
SHIP'S COURSE 90 DEG TRUE. 1520 - 1834 HRS. 7 SEPTEMBER 1983.

| PO # | PI # | WID KM | AREA $KM^2$ | COL M | D/C M | SURF/D $KG/M^2$ | BIOMASS KG | SPECIES | TOW # |
|---|---|---|---|---|---|---|---|---|---|
| 93 | 300 | 4.63 | 9.11 | 265 | 120 | 8.88E-02 | 8.09E+05 | HA | |
| 94 | 300 | 4.63 | 9.11 | 143 | 144 | 1.72E-02 | 1.56E+05 | " | |
| 95 | 300 | 4.63 | 9.11 | 126 | 135 | 6.96E-03 | 6.34E+04 | " | |
| 96 | 300 | 4.63 | 9.11 | 124 | 132 | 2.90E-03 | 2.64E+04 | " | |
| 97 | 300 | 4.63 | 9.11 | 123 | 100 | 3.91E-04 | 3.56E+03 | " | |
| 98 | 300 | 4.63 | 9.11 | 118 | 121 | 4.03E-04 | 3.67E+03 | " | |
| 99 | 300 | 4.63 | 9.11 | 113 | 107 | 1.57E-03 | 1.43E+04 | " | |
| 100 | 300 | 4.63 | 9.11 | 109 | 115 | 5.93E-04 | 5.40E+03 | " | |
| 101 | 300 | 4.63 | 9.11 | 105 | 122 | 7.01E-04 | 6.39E+03 | PL | |
| 102 | 300 | 4.63 | 9.11 | 100 | 117 | 2.57E-03 | 2.34E+04 | " | |
| 103 | 300 | 4.63 | 9.11 | 93 | 111 | 8.36E-03 | 7.61E+04 | " | |
| 104 | 300 | 4.63 | 9.11 | 87 | 103 | 1.07E-02 | 9.76E+04 | " | |
| 105 | 300 | 4.63 | 9.11 | 81 | 99 | 4.89E-03 | 4.46E+04 | " | |
| 106 | 300 | 4.63 | 9.11 | 75 | 92 | 1.02E-03 | 9.32E+03 | " | |
| 107 | 300 | 4.63 | 9.11 | 65 | 49 | 3.51E-05 | 3.20E+02 | " | |
| 108 | 300 | 4.63 | 9.11 | 55 | 70 | 2.44E-03 | 2.22E+04 | HE | |
| 109 | 300 | 4.63 | 9.11 | 46 | 60 | 5.62E-04 | 5.12E+03 | " | |
| 110 | 300 | 4.63 | 9.11 | 39 | 57 | 1.80E-02 | 1.64E+05 | " | |
| 111 | 300 | 4.63 | 9.11 | 33 | 45 | 2.94E-02 | 2.68E+05 | " | |
| 112 | 300 | 4.63 | 9.11 | 29 | 41 | 7.27E-03 | 6.62E+04 | " | |
| 113 | 300 | 4.63 | 9.11 | 23 | 40 | 4.85E-02 | 4.42E+05 | " | |
| 114 | 300 | 4.63 | 9.11 | 21 | 37 | 6.45E-04 | 5.87E+03 | " | |
| 115 | 300 | 4.63 | 9.11 | 17 | 32 | 7.47E-05 | 6.81E+02 | " | |
| 116 | 300 | 4.63 | 9.11 | 9 | 24 | 2.66E-05 | 2.42E+02 | " | |
| 117 | 300 | 4.63 | 9.11 | 8 | 24 | 3.50E-03 | 3.19E+04 | " | |
| 118 | 300 | 4.63 | 9.11 | 10 | 28 | 2.89E-04 | 2.63E+03 | " | |
| 119 | 300 | 4.63 | 9.11 | 12 | 30 | 3.94E-05 | 3.59E+02 | " | |
| 120 | 300 | 4.63 | 9.11 | 9 | 28 | 4.20E-05 | 3.82E+02 | " | |
| 121 | 300 | 4.63 | 9.11 | 5 | 22 | 7.04E-06 | 6.41E+01 | " | |
| 122 | 300 | 4.63 | 9.11 | 1 | 20 | 1.56E-04 | 1.42E+03 | " | |
| 123 | 300 | 4.63 | 9.11 | 4 | 22 | 4.27E-04 | 3.89E+03 | " | |
| 124 | 300 | 4.63 | 9.11 | 3 | 22 | 5.76E-05 | 5.25E+02 | " | |
| 125 | 114 | 4.63 | 3.46 | 1 | 21 | 2.15E-06 | 7.44E+00 | " | |

TOTAL BIOMASS FOR TRANSECT E44 = 2.36E+06

## APPENDIX III

APPENDIX TABLE III/1 SPECIES COMPOSITION FOR THE MIDWATER TRAWL CATCHES OF M/V MARWOOD.

SUMMARY DATA

| TOW NUMBER | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| TOTAL CATCH (KG.) | 363 | 431 | 72 | 1433 | 1110 | 935 |
| DURATION (MIN.) | 30 | 30 | 30 | 30 | 15 | 20 |
| **SPECIES COMPOSITION** | | | | | | |
| Spiny dogfish | - | 4 | 8 | 4 | 8 | - |
| Skate | - | - | - | - | 18 | - |
| Pacific herring | - | - | - | - | - | - |
| Chinook salmon | - | - | - | - | 3 | - |
| Coho salmon | - | - | - | - | - | - |
| Pink salmon | - | - | - | - | - | - |
| Eulachon | - | - | - | - | - | - |
| Pacific hake | - | 424 | 61 | 1417 | 1049 | 922 |
| Walleye pollock | - | - | 1 | 2 | 7 | 13 |
| Sebastes flavidus | 318 | - | - | 6 | - | - |
| Sebastes brevispinis | - | - | - | - | - | - |
| Sebastes entomelas | - | - | - | - | - | - |
| Sebastes paucispinis | - | - | - | - | 7 | - |
| Sebastes pinniger | - | - | - | - | - | - |
| Sebastes proriger | 45 | - | - | - | 18 | - |
| Sablefish | - | - | - | - | - | - |
| Lingcod | - | - | 2 | 4 | - | - |
| Sanddab | - | - | - | - | - | - |
| Arrowtooth flounder | - | 3 | - | - | - | - |

APPENDIX TABLE III/1 (CONT'D)

SUMMARY DATA

| | | | | | | |
|---|---|---|---|---|---|---|
| TOW NUMBER | 7 | 8 | 9 | 10 | 11 | 12 |
| TOTAL CATCH (KG.) | 997 | 1339 | 1050 | 1230 | 500 | 500 |
| DURATION (MIN.) | 14 | 20 | 15 | 15 | 15 | 25 |
| SPECIES COMPOSITION | | | | | | |
| Spiny dogfish | - | - | 1000 | 4 | - | 240 |
| Skate | - | - | - | - | - | - |
| Pacific herring | - | - | 50 | - | - | - |
| Chinook salmon | - | - | - | 4 | - | - |
| Coho salmon | - | - | - | - | - | - |
| Pink salmon | - | - | - | - | - | 3 |
| Eulachon | - | - | - | - | - | - |
| Pacific hake | 953 | 1306 | - | 1220 | - | - |
| Walleye pollock | 42 | 33 | - | 2 | - | - |
| Sebastes flavidus | 2 | - | - | - | 400 | 250 |
| Sebastes brevispinis | - | - | - | - | - | - |
| Sebastes entomelas | - | - | - | - | 75 | - |
| Sebastes paucispinis | - | - | - | - | - | - |
| Sebastes pinniger | - | - | - | - | - | - |
| Sebastes proriger | - | - | - | - | 25 | 7 |
| Sablefish | - | - | - | - | - | - |
| Lingcod | - | - | - | - | - | - |
| Sanddab | - | - | - | - | - | - |
| Arrowtooth flounder | - | - | - | - | - | - |

APPENDIX TABLE III/1 (CONT'D)

SUMMARY DATA

| | | | | | | |
|---|---|---|---|---|---|---|
| TOW NUMBER | 13 | 14 | 15 | 16 | 17 | 18 |
| TOTAL CATCH (KG.) | 4000 | 16 | 1865 | 1065 | 1131 | 1108 |
| DURATION (MIN.) | 27 | 4 | 20 | 07 | 30 | 28 |

SPECIES COMPOSITION

| | | | | | | |
|---|---|---|---|---|---|---|
| Spiny dogfish | 2500 | 5 | - | - | - | - |
| Skate | - | - | - | - | - | - |
| Pacific herring | - | - | 1 | 2 | - | - |
| Chinook salmon | - | 3 | - | - | - | - |
| Coho salmon | - | - | - | - | - | - |
| Pink salmon | - | - | - | - | - | - |
| Eulachon | - | 2 | - | - | - | - |
| Pacific hake | 1000 | 5 | 1863 | 1063 | 1131 | 1077 |
| Walleye pollock | 500 | - | - | - | - | - |
| *Sebastes flavidus* | - | 1 | - | - | - | 10 |
| *Sebastes brevispinis* | - | - | - | - | - | 4 |
| *Sebastes entomelas* | - | - | - | - | - | - |
| *Sebastes paucispinis* | - | - | - | - | - | - |
| *Sebastes pinniger* | - | - | - | - | - | 1 |
| *Sebastes proriger* | - | - | - | - | - | 16 |
| Sablefish | - | - | - | - | - | - |
| Lingcod | - | - | - | - | - | - |
| Sanddab | - | - | 1 | - | - | - |
| Arrowtooth flounder | - | - | - | - | - | - |

APPENDIX TABLE III/1 (CONT'D)

SUMMARY DATA

| | | | | | | |
|---|---|---|---|---|---|---|
| TOW NUMBER | 19 | 20 | 21 | 22 | 23 | 24 |
| TOTAL CATCH (KG.) | 314 | 1447 | 927 | 2545 | 6 | 94 |
| DURATION (MIN.) | 20 | 55 | 09 | 10 | 35 | 15 |

SPECIES COMPOSITION

| | | | | | | |
|---|---|---|---|---|---|---|
| Spiny dogfish | 18 | - | - | 2 | - | - |
| Skate | - | - | - | - | - | - |
| Pacific herring | - | - | - | - | - | - |
| Chinook salmon | - | - | - | - | - | - |
| Coho salmon | - | - | - | - | - | - |
| Pink salmon | - | - | - | - | - | - |
| Eulachon | - | - | - | - | - | - |
| Pacific hake | 293 | 1432 | 908 | 2521 | - | 91 |
| Walleye pollock | 1 | 1 | - | - | - | 3 |
| *Sebastes flavidus* | - | 14 | 8 | 20 | 3 | - |
| *Sebastes brevispinis* | - | - | 10 | - | - | - |
| *Sebastes entomelas* | - | - | - | - | - | - |
| *Sebastes paucispinis* | - | - | - | - | - | - |
| *Sebastes pinniger* | 2 | - | - | - | - | - |
| *Sebastes proriger* | - | - | - | - | 3 | - |
| Sablefish | - | - | 1 | 2 | - | - |
| Lingcod | - | - | - | - | - | - |
| Sanddab | - | - | - | - | - | - |
| Arrowtooth flounder | - | - | - | - | - | - |

APPENDIX TABLE III/1 (CONT'D)

SUMMARY DATA

| TOW NUMBER | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|
| TOTAL CATCH (KG.) | 176 | 470 | 2500 | 1491 | 331 | 962 |
| DURATION (MIN.) | 12 | 30 | 20 | 11 | 30 | 31 |
| **SPECIES COMPOSITION** | | | | | | |
| Spiny dogfish | 3 | - | 2000 | 487 | - | - |
| Skate | - | - | - | - | - | - |
| Pacific herring | - | - | - | - | - | - |
| Chinook salmon | 5 | - | - | - | - | - |
| Coho salmon | - | - | - | - | - | - |
| Pink salmon | - | - | - | - | - | - |
| Eulachon | - | - | - | - | - | - |
| Pacific hake | 114 | 466 | 500 | 1002 | 328 | 913 |
| Walleye pollock | 52 | 2 | - | - | - | - |
| *Sebastes flavidus* | 2 | 2 | - | 2 | 3 | 1 |
| *Sebastes brevispinis* | - | - | - | - | - | - |
| *Sebastes entomelas* | - | - | - | - | - | - |
| *Sebastes paucispinis* | - | - | - | - | - | - |
| *Sebastes pinniger* | - | - | - | - | - | - |
| *Sebastes proriger* | - | - | - | - | - | 48 |
| Sablefish | - | - | - | - | - | - |
| Lingcod | - | - | - | - | - | - |
| Sanddab | - | - | 1 | - | - | - |
| Arrowtooth flounder | - | - | - | - | - | - |

APPENDIX TABLE III/1 (CONT'D)

SUMMARY DATA

| | | | | | | |
|---|---|---|---|---|---|---|
| TOW NUMBER | 31 | 32 | 33 | 34 | 35 | 36 |
| TOTAL CATCH (KG.) | 207 | 560 | 1169 | 261 | 3658 | 1018 |
| DURATION (MIN.) | 28 | 13 | 18 | 15 | 09 | 20 |
| SPECIES COMPOSITION | | | | | | |
| Spiny dogfish | - | - | - | 2 | - | - |
| Skate | - | - | - | - | - | - |
| Pacific herring | - | - | - | 250 | - | - |
| Chinook salmon | - | - | - | 3 | - | - |
| Coho salmon | - | - | - | 3 | - | - |
| Pink salmon | - | - | 1 | - | - | - |
| Eulachon | - | - | - | - | - | 1 |
| Pacific hake | 185 | 558 | 1107 | 3 | 3655 | 1017 |
| Walleye pollock | - | - | 59 | - | - | - |
| Sebastes flavidus | 3 | 2 | 2 | - | - | - |
| Sebastes brevispinis | - | - | - | - | - | - |
| Sebastes entomelas | - | - | - | - | - | - |
| Sebastes paucispinis | - | - | - | - | - | - |
| Sebastes pinniger | - | - | - | - | - | - |
| Sebastes proriger | 19 | - | - | - | - | - |
| Sablefish | - | - | - | - | - | - |
| Lingcod | - | - | - | - | 3 | - |
| Sanddab | - | - | - | - | - | - |
| Arrowtooth flounder | - | - | - | - | - | - |

APPENDIX TABLE III/1 (CONT'D)

SUMMARY DATA

| | | | | |
|---|---|---|---|---|
| TOW NUMBER | 37 | 38 | 39 | 40 |
| TOTAL CATCH | 4000 | 669 | 6819 | 3101 |
| DURATION | 4 | 08 | 05 | 05 |

SPECIES COMPOSITION

| | | | | |
|---|---|---|---|---|
| Spiny dogfish | - | - | - | - |
| Skate | - | - | - | - |
| Pacific herring | - | - | - | - |
| Chinook salmon | - | - | 1 | - |
| Coho salmon | - | - | - | - |
| Pink salmon | - | - | - | - |
| Eulachon | - | - | - | - |
| Pacific hake | 6363 | 651 | 6818 | 3091 |
| Walleye pollock | - | 18 | - | - |
| *Sebastes flavidus* | 227 | - | - | - |
| *Sebastes brevispinis* | - | - | - | - |
| *Sebastes entomelas* | - | - | - | - |
| *Sebastes paucispinis* | - | - | - | - |
| *Sebastes pinniger* | - | - | - | - |
| *Sebastes proriger* | - | - | - | - |
| Sablefish | - | - | - | - |
| Lingcod | - | - | - | 10 |
| Sanddab | - | - | - | - |
| Arrowtooth flounder | - | - | - | - |

Appendix table III/2. Tow information for M/V Marwood
22 August - 8 September 1983.

Vessel M/V Marwood  Day Mo Yr 25-08-83  Set/Haul No 1

Location S.E.OF Finger bank  Area E14 AND E15

Start Lat. 48°34.0'  Long. 125°18.6'

End Lat. 48°33.9'  Long. 125°15.8'

Gear M.W.T (P.D.T.)  Start Time 17:04  Dur 30 min

Bottom Depth m: Start 108  End 108  Est. Av. Depth: 108

Net Start & Stop Depth m: Start 82 End 82 Est. Av. Depth: 82
( headline to surface)

Direction Of SET true 93° Speed kn 3.0 Distance mi 1.8

Set On: Few long traces 40-59 FMS.

Remarks Headline of net 45-43.5-45 FMS.

---

Vessel M/V Marwood  Day Mo Yr 25-08-83  Set/Haul No 2

Location Prairies  Area E13 AND E20

Start Lat. 48°29.7'  Long. 125°23.2'

End Lat. 48°30.3'  Long. 125°19.9'

Gear M.W.T (P.D.T.)  Start Time 17:36  Dur 30 min

Bottom Depth m: Start 146  End 144  Est. Av. Depth: 145

Net Start & Stop Depth M: Start 88 End 88 Est. Av. Depth: 101
( headline to surface)

Direction Of SET true 71° Speed kn 3.0 Distance mi 2.2

Set On: Heavy traces between 52 AND 64 fms.

Remarks Net headline 48-63-48 fms.

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Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 26-08-83  Set/Haul No 3

Location Finger Bank  Area E20

Start Lat. 48°34.0'  Long. 125°24.0'

End Lat. 48°33.8'  Long. 125°20.9'

Gear M.W.T (P.D.T.)  Start Time 07:34  Dur 30 min

Bottom Depth m: Start 153  End 141  Est. Av. Depth: 147

Net Start & Stop Depth m: Start 99 End 99 Est. Av. Depth: 106
( headline to surface)

Direction Of Set true 104° Speed kn 3.0 Distance mi 1.9

Set On: Scattered layer 52-68 fms.

Remarks Net headline 30-17-32 fms. off bottom,net opening
11 m

Vessel M/V Marwood  Day Mo Yr 26-08-83  Set/Haul No 4

Location Finger Bank  Area E20

Start Lat. 48°32.7'  Long. 125°22.4'

End Lat. 48°31.1'  Long. 125°22.6'

Gear M.W.T (P.D.T.)  Start Time 09:52  Dur 30 min

Bottom Depth m: Start 135  End 145  Est. Av. Depth: 140

Net Start & Stop Depth m: Start 110 End 117 Est. Av. Depth: 114
( headline to surface)

Direction Of Set true 182° Speed kn 3.0 Distance mi 1.6

Set On: Spotty layer 60-70 fms.

Remarks Net Headline 60-62 fms.

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 26-08-83 Set/Haul No 5

Location Finger Bank Area E13

Start Lat. 48°31.2' Long. 125°21.6'

End Lat. 48°24.6' Long. 125°21.4'

Gear M.W.T (P.D.T.) Start Time 13:22 Dur 15 min

Bottom Depth m: Start 124 End 148 Est. Av. Depth: 136

Net Start & Stop Depth m: Start 73 End 93 Est. Av. Depth: 96
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 1.6

Set On: Heavy spotting 58-74 fms.

Remarks

Vessel M/V Marwood Day Mo Yr 26-08-83 Set/Haul No 6

Location Prairies Area E12 AND E13

Start Lat. 48°28.6' Long. 125°19.4'

End Lat. 48°28.6' Long. 125°20.6'

Gear M.W.T (P.D.T.) Start Time 14:45 Dur 20 min

Bottom Depth m: Start 157 End 157 Est. Av. Depth: 157

Net Start & Stop Depth m: Start 121 End 110 Est. Av. Depth: 123
( headline to surface)

Direction Of Set true. SPeed kn 3.0 Distance mi 0.7

Set On: Med spotting 60-80 fms.

Remarks Net Headrope 66-76-60 fms.

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 26-08-83 Set/Haul No 7

Location Prairies Area E13

Start Lat. 48°30.0' Long. 125°18.6'

End Lat. 48°29.7' Long. 125°17.3'

Gear M.W.T (P.D.T.) Start Time 16:20 Dur 14 min

Bottom Depth m: Start 146 End 148 Est. Av. Depth: 147

Net Start & Stop Depth m: Start 110 End 104 Est. Av. Depth: 110
( headline to surface)

Direction Of Set true 96° Speed kn 3.0 Distance mi 1.0

Set On: Med-Hev spotting 62-74 fms.

Remarks Target on spotting by moving net up and down while doing oblique tow

Vessel M/V Marwood Day Mo Yr 26-08-83 Set/Haul No 8

Location Prairies Area E11 and E12

Start Lat. 48°28.1' Long. 125°23.5'

End Lat. 48°29.1' Long. 125°24.3'

Gear M.W.T (P.D.T.) Start Time 17:58 Dur 20 min

Bottom Depth m: Start 155 End 152 Est. Av. Depth: 153

Net Start & Stop Depth m: Start 101 End 95 Est. Av. Depth: 108
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 1.2

Set On: Hev-spotting 62-68 fms.

Remarks Fish moved up to mean 64 fms. ( 60-68 fms. )

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 26-08-83 Set/Haul No 9

Location Steep Edge Area E24

Start Lat. 48°35.8' Long. 125°42.4'

End Lat. 48°34.9' Long. 125°40.2'

Gear M.W.T (P.D.T.) Start Time 20:30 Dur 15 min

Bottom Depth m: Start 62 End 62 Est. Av. Depth: 62

Net Start & Stop Depth m: Start 35 End 35 Est. Av. Depth: 35
( headline to surface)

Direction Of Set true Speed kn Distance mi

Set On:

Remarks

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Vessel M/V Marwood Day Mo Yr 27-08-83 Set/Haul No 10

Location Prairies AREA E12 and E13

Start Lat. 48°28.9' Long. 125°13.8'

End Lat. 48°28.9' Long. 125°12.8'

Gear M.W.T (P.D.T.) Start Time 10:50 Dur 15 min

Bottom Depth m: Start 146 End 146 Est. Av. Depth: 146

Net Start & Stop Depth m: Start 113 End 110 Est. Av. Depth: 116
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 0.8

Set On: Med-hev spotting 62-74 fms.

Remarks

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Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 27-08-83  Set/Haul No 11

Location Prairies  AREA E14

Start Lat. 48°32.7'  Long. 125°18.3'

End Lat. 48°34.0'  Long. 125°17.4'

Gear M.W.T (P.D.T.)  Start Time 13:58  Dur 15 min

Bottom Depth m: Start 117  End 110  Est. Av. Depth: 114

Net Start & Stop Depth m: Start 81 End 81 Est. Av. Depth: 82
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 0.8

Set On:

Remarks

Vessel M/V Marwood  Day Mo Yr 27-08-83  Set/Haul No 12

Location Swiftsure  AREA E14

Start Lat. 48°31.4'  Long. 124°56.8'

End Lat. 48°31.0'  Long. 124°58.4'

Gear M.W.T (P.D.T.)  Start Time 17:55  Dur 25 min

Bottom Depth m: Start 70  End 71  Est. Av. Depth: 70

Net Start & Stop Depth m: Start 37 End 37 Est. Av. Depth: 40
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 1.2

Set On: Light layer 17-22 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 27-08-83  Set/Haul No 13

Location Swiftsure  Area E14

Start Lat. 48°31.9'  Long. 124°52.2'

End Lat. 48°32.5'  Long. 124°50.4'

Gear M.W.T (P.D.T.)  Start Time 19:56  Dur 27 min

Bottom Depth m: Start 134  End 121  Est. Av. Depth: 128

Net Start & Stop Depth m: Start 84 End 84 Est. Av. Depth: 89
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 1.4

Set On:

Remarks

Vessel M/V Marwood  Day Mo Yr 27-08-83  Set/Haul No 14

Location Sombrio Pt.  AREA Strait of Juan de Fuca

Start Lat. 48°27.5'  Long. 124°19.4'

End Lat. 48°27.6'  Long. 125°19.3'

Gear M.W.T (P.D.T.)  Start Time 16:17  Dur 4 min

Bottom Depth m: Start 110  End 110  Est. Av. Depth: 110

Net Start & Stop Depth m: Start 55 End 70 Est. Av. Depth: 63
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 0.3

Set On: Heavy layer 34-42 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 29-08-83  Set/Haul No 15

Location Washington Coast  AREA E1

Start Lat. 47°59.6'  Long. 124°59.0'

End Lat. 48°00.2'  Long. 124°57.4'

Gear M.W.T (P.D.T.)  Start Time 07:25  Dur 20 min

Bottom Depth m: Start 104  End 97  Est. Av. Depth: 100

Net Start & Stop Depth m: Start 68 End 62 Est. Av. Depth: 70
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 1.3

Set On: Med trace 38-54 fms.

Remarks

Vessel M/V Marwood  Day Mo Yr 29-08-83  Set/Haul No 16

Location Washington Coast  AREA E2

Start Lat. 48°02.8'  Long. 124°58.4'

End Lat. 48°02.8'  Long. 124°59.4'

Gear M.W.T (P.D.T.)  Start Time 10:06  Dur 7 min

Bottom Depth m: Start 102  End 108  Est. Av. Depth: 106

Net Start & Stop Depth m: Start 75 End 71 Est. Av. Depth: 77
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 0.6

Set On: Heavy layer 40-50 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 29-08-83  Set/Haul No 17

Location Juan de Fuca Canyon  AREA E1

Start Lat. 47°55.9'  Long. 125°26.2'

End Lat. 48°00.8'  Long. 125°24.2'

Gear M.W.T (P.D.T.) Start Time 13:27 Dur 30 min

Bottom Depth m: Start 187 End 482 Est. Av. Depth: 400

Net Start & Stop Depth m: Start 172 End 168 Est. Av. Depth: 187
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 1.6

Set On: Light spotting 70-90 fms.

Remarks

Vessel M/V Marwood  Day Mo Yr 29-08-83  Set/Haul No 18

Location Juan de Fuca Canyon  Area E3

Start Lat. 48°05.1'  Long. 125°20.3'

End Lat. 48°05.6'  Long. 125°18.6'

Gear M.W.T (P.D.T.) Start Time 17:30 Dur 28 min

Bottom Depth m: Start 188 End 251 Est. Av. Depth: 270

Net Start & Stop Depth m: Start 166 End 174 Est. Av. Depth: 170
( headline to surface)

Direction Of SET true  SPEED kn 3.0 DISTANCE mi 1.2

Set On: Heavy 78-98 fms.

REMARKS

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 29-08-83 Set/Haul No 19

Location Juan de Fuca Canyon AREA E4

Start Lat. 48°07.6' Long. 125°07.3'

End Lat. 48°07.6' Long. 125°08.6'

Gear M.W.T (P.D.T.) Start Time 20:43 Dur 20 min

Bottom Depth m: Start 260 End 232 Est. Av. Depth: 246

Net Start & Stop Depth m: Start 132 End 132 Est. Av. Depth: 132
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 0.9

Set On: Light spotting 70 fms.

Remarks

Vessel M/V Marwood Day Mo Yr 30-08-83 Set/Haul No 20

Location Nitinat Canyon Area E4

Start Lat. 48°08.0' Long. 125°39.2'

End Lat. 48°07.8' Long. 125°41.0'

Gear M.W.T (P.D.T.) Start Time 10:50 Dur 55 min

Bottom Depth m: Start 196 End 220 Est. Av. Depth: 208

Net Start & Stop Depth m: Start 152 End 201 Est. Av. Depth: 182
( headline to surface)

Direction Of Set true Speed kn Distance mi

Set On: Light layer 70-110 fms.

Remarks Circle tow

Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 30-08-83  Set/Haul No 21

Location Nitinat Canyon  Area E5

Start Lat. 48°10.0'  Long. 125°39.6'

End Lat. 48°10.0'  Long. 125°38.8'

Gear M.W.T (P.D.T.)  Start Time 13:20  Dur 09 min

Bottom Depth m: Start 172  End 179  Est. Av. Depth: 177

Net Start & Stop Depth m: Start 146 End 143 Est. Av. Depth: 145
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 0.6

Set On:

Remarks

Vessel M/V Marwood  Day Mo Yr 30-08-83  Set/Haul No 22

Location Nitinat Canyon  Area E5 and E6

Start Lat. 48°10.5'  Long. 125°35.8'

End Lat. 48°10.9'  Long. 125°35.0'

Gear M.W.T (P.D.T.)  Start Time 15:51  Dur 10 min

Bottom Depth m: Start 155  End 155  Est. Av. Depth: 155

Net Start & Stop Depth m: Start 132 End 128 Est. Av. Depth: 130
( headline to surface)

Direction Of Set true 312°  Speed kn 3.0 Distance mi 0.6

Set On: Light 46-66 fms. Heavy balls 68-82 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 30-08-83 Set/Haul No 23

Location Prairies AREA E6

START Lat. 48°12.0' Long. 125°22.8'

End Lat. 48°13.6' Long. 125°18.3'

Gear M.W.T (P.D.T.) Start Time 18:08 Dur 35 min

Bottom Depth m: Start 110 End 187 Est. Av. Depth: 148

Net Start & Stop Depth m: Start 88 End 91 Est. Av. Depth: 90
( headline to surface)

Direction Of Set true 95° Speed kn 3.0 Distance mi 2.9

Set On:

Remarks

Vessel M/V Marwood Day Mo Yr 31-08-83 Set/Haul No 24

Location Washington Coast Area E4

Start Lat. 48°07.9' Long. 124°58.2'

End Lat. 48°07.3' Long. 124°59.9'

Gear M.W.T (P.D.T.) Start Time 08:05 Dur 15 min

Bottom Depth m: Start 154 End 324 Est. Av. Depth: 239

Net Start & Stop Depth m: Start 131 End 128 Est. Av. Depth: 129
( headline to surface)

Direction Of SET true Speed kn 3.0 Distance mi 1.3

Set On: Light spotting 58-80 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 31-08-83  Set/Haul No 25

Location Washington Coast  Area E7

Start Lat. 48°14.9'  Long. 125°55.8'

End Lat. 48°16.1'  Long. 125°56.0'

Gear M.W.T (P.D.T.)  Start Time 11:54  Dur 12 min

Bottom Depth m: Start 146  End 168  Est. Av. Depth: 157

Net Start & Stop Depth m: Start 128 End 141 Est. Av. Depth: 134
( headline to surface)

Direction Of Set true 340° Speed kn 3.0 Distance mi 1.2

Set On: Light spotting 62-78 fms.

Remarks

Vessel M/V Marwood  Day Mo Yr 31-08-83  Set/Haul No 26

Location Prairies  Area E9 and E10

Start Lat. 48°20.5'  Long. 125°13.2'

End Lat. 48°21.4'  Long. 125°11.6'

Gear M.W.T (P.D.T.)  Start Time 15:02  Dur 30 min

Bottom Depth m: Start 183  End 177  Est. Av. Depth: 180

Net Start & Stop Depth m: Start 154 End 150 Est. Av. Depth: 152
( headline to surface)

Direction Of Set true 48° Speed kn 3.0 Distance mi 1.4

Set On: Light spotting 70-90 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 31-08-83 Set/Haul No 27

Location Swiftsure AREA E13

Start Lat. 48°30.2' Long. 124°53.2'

End Lat. 48°29.4' Long. 124°55.0'

Gear M.W.T (P.D.T.) Start Time 18:17 Dur 20 min

Bottom Depth m: Start 79 End 155 Est. Av. Depth: 109

Net Start & Stop Depth m: Start 70 End 73 Est. Av. Depth: 71
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 0.9

Set On: Med layer 40-58 fms ,Light layer 15-60 fms.

Remarks

Vessel M/V Marwood Day Mo Yr 31-08-83 Set/Haul No 28

Location Swiftsure AREA E12

Start Lat. 48°28.5' Long. 124°55.8'

End Lat. 48°28.1' Long. 124°55.1'

Gear M.W.T (P.D.T.) Start Time 19:45 Dur 11 min

Bottom Depth m: Start 148 End 139 Est. Av. Depth: 142

Net Start & Stop Depth m: Start 113 End 113 Est. Av. Depth: 113
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 0.6

Set On:

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 1-09-83 Set/Haul No 29

Location Nitinat Canyon AREA E7 and E8

Start Lat. 48°16.4' Long. 125°46.4'

End Lat. 48°15.8' Long. 125°48.8'

Gear M.W.T (P.D.T.) Start Time 08:20 Dur 30 min

Bottom Depth m: Start 181 End 212 Est. Av. Depth: 191

Net Start & Stop Depth m: Start 155 End 183 Est. Av. Depth: 169
( headline to surface)

Direction Of Set true 262 Speed kn 3.0 Distance mi 1.8

Set On:

Remarks

Vessel M/V Marwood Day Mo Yr 01-09-83 Set/Haul No 30

Location Barkley Canyon AREA E8 and E9

Start Lat. 48°18.3' Long. 125°48.6'

End Lat. 48°19.2' Long. 125°51.3'

Gear M.W.T (P.D.T.) Start Time 11:18 Dur 31 min

Bottom Depth m: Start 181 End 179 Est. Av. Depth: 180

Net Start & Stop Depth m: Start 132 End 133 Est. Av. Depth: 132
( headline to surface)

Direction Of Set true 337° Speed kn 3.0 Distance mi 1.9

Set On: Med spotting 58-80 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 01-09-83 Set/Haul No 31

Location Barkley Canyon AREA E10 and E11

Start Lat. 48°24.5' Long. 125°53.7'

End Lat. 48°23.1' Long. 125°53.1'

Gear M.W.T (P.D.T.) Start Time 14:30 Dur 28 min

Bottom Depth m: Start 216 End 251 Est. Av. Depth: 233

Net Start & Stop Depth m: Start 161 End 201 Est. Av. Depth: 181
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 1.5

Set On: Light spotting 54-72 fms.

Remarks

Vessel M/V Marwood Day Mo Yr 01-09-83 Set/Haul No 32

Location S.E.C. AREA E23

Start Lat. 48°30.3' Long. 125°34.2'

End Lat. 48°30.8' Long. 125°32.9'

Gear M.W.T (P.D.T.) Start Time 19:45 Dur 13 min

Bottom Depth m: Start 124 End 133 Est. Av. Depth: 129

Net Start & Stop Depth m: Start 106 End 106 Est. Av. Depth: 106
( headline to surface)

Direction Of Set true 82° Speed kn 3.0 Distance mi 1.0

Set On: Light spotting 48-56 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 02-09-83  Set/Haul No 33

Location S.E.C.  AREA E23

Start Lat. 48°34.7'  Long. 125°34.8'

End Lat. 48°35.0'  Long. 125°33.3'

Gear M.W.T (P.D.T.)  Start Time 08:20  Dur 18 min

Bottom Depth m: Start 126  End 123  Est. Av. Depth: 124

Net Start & Stop Depth m: Start 104 End 102 Est. Av. Depth: 103
( headline to surface)

Direction Of Set true 72°. Speed kn 3.0 Distance mi 1.1

Set On: Heavy spotting 58-80 fms.

Remarks

Vessel M/V Marwood  Day Mo Yr 02-09-83  Set/Haul No 34

Location S.W.C.  AREA E28

Start Lat. 48°41.0'  Long. 125°50.0'

End Lat. 48°42.0'  Long. 125°49.3'

Gear M.W.T (P.D.T.)  Start Time 11:20  Dur 15 min

Bottom Depth m: Start 64  End 66  Est. Av. Depth: 65

Net Start & Stop Depth m: Start 46 End 46 Est. Av. Depth: 46
( headline to surface)

Direction Of Set true 302°  Speed kn 3.0 Distance mi 1.4

Set On: Heavy streaks 12-34 fms., Heavy spots 32-34 fms.

Remarks Set as close to bottom as possible.

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 02-09-83 Set/Haul No 35

Location The Hole AREA E27

Start Lat. 48°44.5' Long. 125°40.6'

End Lat. 48°44.2' Long. 125°41.2'

Gear M.W.T (P.D.T.) Start Time 13:49 Dur 09 min

Bottom Depth m: Start 185 End 174 Est. Av. Depth: 179

Net Start & Stop Depth m: Start 115 End 115 Est. Av. Depth: 115
( headline to surface)

Direction Of Set true Speed kn 3.0 Distance mi 0.6

Set On: Heavy traces 62-82 fms.

Remarks

Vessel M/V Marwood Day Mo Yr 02-09-83 Set/Haul No 36

Location The Hole AREA E24

Start Lat. 48°45.6' Long. 125°35.8'

End Lat. 48°45.9' Long. 125°34.1'

Gear M.W.T (P.D.T.) Start Time 15:29 Dur 20 min

Bottom Depth m: Start 165 End 145 Est. Av. Depth: 155

Net Start & Stop Depth m: Start 146 End 124 Est. Av. Depth: 135
( headline to surface)

Direction Of Set true 69° Speed kn 3.0 Distance mi 1.1

Set On: Heavy spotting 58-80 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood Day Mo Yr 03-09-83 Set/Haul No 37

Location Loudoun Canyon AREA E34

Start Lat. 48°35.1' Long. 126°05.4'

End Lat. 48°34.8' Long. 126°05.2'

Gear M.W.T (P.D.T.) Start Time 17:24 Dur 04 min

Bottom Depth m: Start 154 End 154 Est. Av. Depth: 154

Net Start & Stop Depth m: Start 128 End 128 Est. Av. Depth: 128
( headline to surface)

Direction Of Set true 140° Speed kn 3.0 Distance mi 0.4

Set On: Heavy 56-66 fms.

Remarks

Vessel M/V Marwood Day Mo Yr 04-09-83 Set/Haul No 38

Location Bottleneck AREA E23 and E24

Start Lat. 48°36.0' Long. 125°37.0'

End Lat. 48°36.5' Long. 125°36.2'

Gear M.W.T (P.D.T.) Start Time 09:48 Dur 08 min

Bottom Depth m: Start 121 End 123 Est. Av. Depth: 121

Net Start & Stop Depth m: Start 81 End 86 Est. Av. Depth: 84
( headline to surface)

Direction Of Set true 337° Speed kn 3.0 Distance mi 0.9

Set On: Med spotting 52-64 fms.

Remarks

Appendix table III/2 (CONT'D)

Vessel M/V Marwood  Day Mo Yr 05-09-83  Set/Haul No 39

Location Firing Range  AREA E43

Start Lat. 48°57.0'  Long. 125°45.1'

End Lat. 48°56.8'  Long. 125°44.8'

Gear M.W.T (P.D.T.)  Start Time 09:17  Dur 05 min

Bottom Depth m: Start 86  End 86  Est. Av. Depth: 86

Net Start & Stop Depth m: Start 68 End 68 Est. Av. Depth: 68
( headline to surface)

Direction Of Set true  Speed kn 3.0 Distance mi 0.2

Set On: Heavy 32-46 fms.

Remarks

Vessel M/V Marwood  Day Mo Yr 05-09-83  Set/Haul No 40

Location Clayoquot Canyon  AREA E43

Start Lat. 48°57.3'  Long. 126°12.8'

End Lat. 48°57.2'  Long. 126°12.2'

Gear M.W.T (P.D.T.)  Start Time 13:11  Dur 05 min

Bottom Depth m: Start 108  End 108  Est. Av. Depth: 108

Net Start & Stop Depth m: Start 71 End 71 Est. Av. Depth: 71
( headline to surface)

Direction Of Set true 144°  Speed kn 3.0 Distance mi 0.4

Set On: Light spotting 28-38 fms.,Heavy spotting 38-46 fms.

Remarks